DOCUMENT RESUME

ED 448 671 HE 033 682

AUTHOR	Moore, Jamillah; Teng, Allen
TITLE	Validating Standardized Testing: The Role of the SAT and ACT in Undergraduate Admissions. [Background Information to Legislative Hearing].
INSTITUTION	California State Legislature, Sacramento. Senate Select Committee on Higher Education Admissions and Outreach.
PUB DATE	1998-02-05
NOTE	424p.; For the California State Senate report on the hearing, see HE 033 683.
AVAILABLE FROM	Senate Publications, 1020 N Street, Room B-53, Sacramento, CA 95814 ($10 plus current California sales tax, publication number 955-X). Tel: 916-327-2155.
PUB TYPE	Collected Works - General (020)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Admission (School); College Applicants; *College Entrance Examinations; High School Students; High Schools; Legislators; Public Colleges; *Standardized Tests; State Legislation; *Test Use
IDENTIFIERS	*ACT Assessment; California; California State University; *Scholastic Assessment Tests; University of California

ABSTRACT

A hearing was planned by the California Senate Select Committee on Higher Education Admissions and Outreach to consider the role of the Scholastic Assessment Tests (SAT) and the American College Test (ACT) in the admission of students to California's public universities. The hearing was intended to provide a serious discussion of the merits and concerns surrounding these admissions tests and to consider their effectiveness and some other forms of assessment used in other states and private colleges. The hearing was planned in the context of California Senate Constitutional Amendment 7, which would redefine the criteria for admission to the University of California and California State University. This document contains the following background materials for the hearing: (1) an introduction with the hearing announcement, press release, agenda, and the text of the proposed amendment; (2) "Eligibility of California's 1996 High School Graduates for Admission to the State's Public Universities" (California Postsecondary Education Commission); (3) "University of California Follow-Up Analyses of the 1996 CPEC Eligibility Study" (University of California, Office of the President, Student Academic Services); (4) "Undergraduate Admission Requirements" (California State University); (5) data on independent California colleges and universities from the "1997-1998 California and Independent Colleges and Universities Guide"; (6) "Briefing Paper on the SAT" prepared for the hearing by the College Board; (7) "Using the ACT Assessment in Making Admissions and Course Placement Decisions" (brief prepared by the American College Testing Program); (8) "Latino Student Eligibility and Participation in the University of California: Ya Basta! Report Number Five" (the Latino Eligibility Task Force); (9) "The Princeton Review of Orange County and Riverside" (The Princeton Review); (10) fact sheets and information from FairTest, the National Center for Fair & Open Testing; (11) a collection of supplemental materials related to the use of college admissions examinations, including some court case descriptions; and (12) a collection of news articles related to test use. (SLD)

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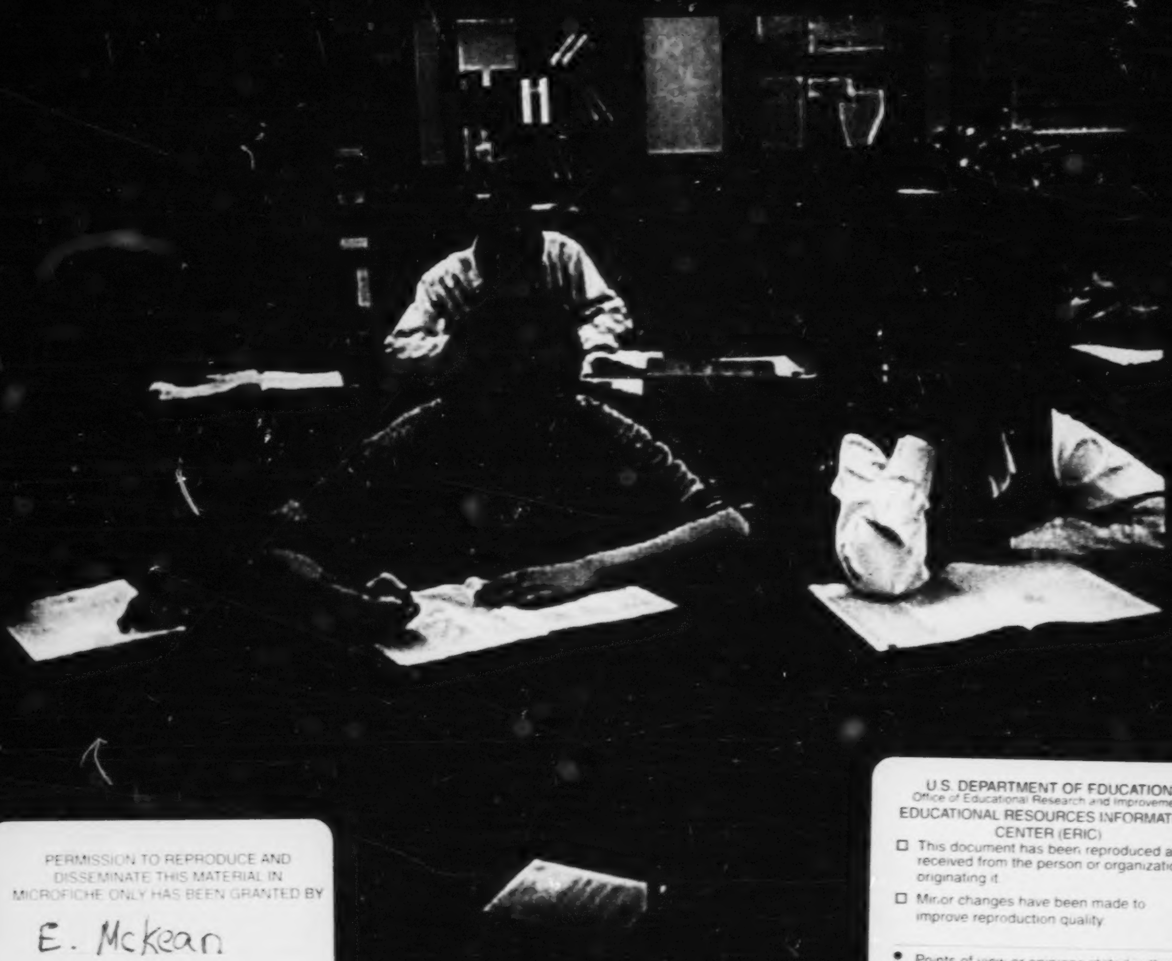
ED 448 671

SENATE SELECT COMMITTEE ON HIGHER EDUCATION ADMISSIONS & OUTREACH



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CHAIR:
SENATOR TERESA P. HUGHES

VALIDATING STANDARDIZED TESTING: THE ROLE OF THE SAT AND ACT IN UNDERGRADUATE ADMISSIONS

THURSDAY, FEBRUARY 5, 1998 • STATE CAPITOL, SACRAMENTO

HE033682

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ABOUT STANDARDIZED TESTING:

FROM LATINO ELIGIBILITY REPORT:

"Eliminating the SAT requirement would greatly expand Latino student eligibility without compromising the integrity of UC's ability to select those students who are most likely to succeed in its programs."

FROM SHARIF V. NEW YORK STATE DEPT OF EDUCATION(1989):

"This Court finds that defendants are discriminating against female plaintiffs and ...enjoins the State Education Department and its Commissiioner from awarding the merit scholarships at issue solely on the basis of the SAT."[1]

UC PRESIDENT RICHARD ATKINSON

"It[The SAT] works as a psychological and financial obstacle. It becomes useful in the admission process only for the student who has done poorly in required (high school) classes."[2]

"We've gone off the deep end in using a two-point difference in test scores to make decisions that we don't have the evidence to justify."[3]

On the proposal to make SAT optional and use Golden State Exams instead: "This is something we should move on. I find this recommendation a very interesting one."[4]

WARD CONNERLY, UC REGENT

On Disproportionate scores of Latinos: "The things you saying are not unique to Latinos. They apply across the board to Asians, whites, blacks ...to a lot of students who are disadvantaged."[5]

GOVERNOR PETE WILSON

"From those who should know better, comes the ill-conceived notion that our universities should drop the SAT - the Scholastic Assesment Test ...The SAT is perhaps the best objective antidote to grade-inflation. Ending it undermines the accountability we need and are seeking at all levels of our educational system. Sending students to college who are unprepared to do college work is the ultimate in social promotion. Exposing any youngster to a high probability of failure and disillusionment is worse than deceptive. It's destructive."[6]

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[1] *Sharif, et al. v New State Department of Education* , No. 88 Civ 8435 (JMW) 709 F. Supp. 345, 1989 U.S. Dist. LEXIS 961

[2] Z. Byron Wolf. "Task Force Urges Regents to Drop SAT Requirement" Daily Californian 19 Sept. 1997

[3] Brad Hayward. "UC ponders lesser role for SAT tests" Sacramento Bee 19 Sept. 1997

[4] Randal Archibold and Richard Colvin. "UC Urged to Drop SATs as Admissions Criteria" LA Times 19 Sept. 1997

[5] Randal Archibold and Richard Colvin. "UC Urged to Drop SATs as Admissions Criteria" LA Times 19 Sept. 1997

"We must help educationally deprived but deserving youngsters win admission to college, legitimately. Outreach? ...I call upon every member of the UC and CSU system to do just that --to work with their host communities to provide SAT preparation in the most effective way possible: to create charter schools with local school districts, or at least to become actively engaged in curriculum development for grades K-12."[7]

PAUL KANAREK, PRINCETON REVIEW OF ORANGE COUNTY

"Admissions counselors knew before that a poor black kid was going to score 300 points lower than a rich white kid. They used affirmative action to level the playing field. That tool has been taken from them."[8]

RAFAEL MAGALLAN, COLLEGE BOARD

"It ensures some equity. It's objective. We question those who argue against it because they aren't scoring high. They want to break the qthermometer because [they] don't like the temperature."[9]

DR. PHYLLIS ROSSER, EQUALITY IN TESTING PROJECT

"You can manipulate a test to do anything. The SAT is supposed to predict how well you're going to do in college. However, women get better grades in high school and equal or better grades in college. I've always felt it was consumer fraud."[10]

JAY ROSNER, PRINCETON REVIEW FOUNDATION

"I liken the standardized test to free-throw shooting in basketball. Good free-throw shooters tend to be good basketball players and vice versa, but there are so many exceptions to that rule that you have to question the connection."

---

[6] Pete Wilson, *1998 State of the State Address*. 7 Jan. 1998

[7] Pete Wilson, *1998 State of the State Address*. 7 Jan. 1998

[8] Kimberly Kindy. "Debate rages over the SAT yardstick" Orange County Register 12 Oct 1997.

[9] Kimberly Kindy. "Debate rages over the SAT yardstick" Orange County Register 12 Oct 1997.

[10] Pamela Burdman. "Worth of SAT Exam Questioned" San Francisco Chronicle 11 Nov. 1997.

DR. WILLIAM HISS, VP-ADMISSIONS, BATES COLLEGE

"We believed that SAT scores were probably scaring off highly talented kids who had proven themselves to everyone but the testing agencies. We were right."[11]

PROFESSOR LANI GUINER, UNIV. OF PENNSYLVANIA LAW SCHOOL

"The LSAT is only slightly better than random selection at prediction law school achievements for all students."[12]

STEVE GLICKMAN, STUDENT BODY PRESIDENT, EL CAMINO REAL H.S.

"My family would be upset. I'd be upset. The majority of students here would be upset. El Camino stresses the SAT. It would be a let-down after all the prepping we do."[13]

JUAN LORANCA, STUDENT, SANTA ANA HIGH SCHOOL

"At this high school, hardly any one gets 1,000. I don't know how I'll do, but I'm not afraid anymore. They showed us simple stuff. Shortcuts and how it's different from other tests."[14]

ABOUT DR. MARTIN LUTHER KING, JR.

If judged strictly by virtue of his standardized test score, Martin Luther King, Jr. would never have earned his doctorate. Acknowledged as one of the greatest orators and influential writers of this century, his Graduate Record Exam(GRE) scores were in the bottom quartile of test-takers including a "below average" verbal score.[15]

FROM COLLEGE BOARD:

National Averages on SAT
All: 1016
Asian/Pacific Islander: 1056
Whites: 1052
Chicano-American: 909
Hispanic/Latinos: 934
African-American: 857
Family Income over $70,000: 997
Family Income less than $20,000: 813

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[11] Kimberly Kindy, "Debate rages over the SAT yardstick" Orange County Register 12 Oct 1997.

[12] Joanne Creighton "The SAT Solution: None of the above" Boston Globe 29 Sept. 1997

[13] Terri Hardy, "Educators question usefulness of SAT" Daily News of Los Angeles 20 Sept. 1997

[14] Kimberly Kindy, "Bid to boost UC Diversity gets mixed O.C. results" Orange County Register 11 Jan. 1998

[15] Ethan Bronner, "Universities face return to racial segregation" San Diego Union-Tribune 8 Nov 1997.

INTRODUCTION

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California Legislature

SENATE SELECT COMMITTEE
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HIGHER EDUCATION ADMISSIONS
AND OUTREACH

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January 5, 1998

The Senate Select Committee on Higher Education Admissions and Outreach cordially invites you to attend a hearing:

VALIDATING STANDARDIZED TESTING:
The Role of the SAT and ACT in Undergraduate Admissions

February 5, 1998 (upon adjournment of session)
State Capitol, Room 4203
Sacramento, CA

In the increasingly competitive global marketplace, a college education is nearly universally agreed as the admissions ticket to a working wage and potential social mobility. Current projections indicate that over 455,000 current K-12 students will seek postsecondary education by the year 2005 and two million more will be enrolled at the K-12 level by that time.

Proposition 209 has spotlighted attention on university admissions policies. The California University system's major assessment vehicle, along with GPA, is the Scholastic Aptitude Test (SAT) and the American College Test (ACT). First administered as admissions tools in the 1960's by reformers seeking "objective" admissions criteria, the SAT and ACT have since been extensively researched and criticized as "gender-biased", "culturally-biased" and "ineffective." Critics often state that the test is indicative not of academic qualifications but of socioeconomic resources.

Currently, proposals to modify the use of the SAT in admissions policies are being considered by the University Faculty, the UC President, as well as the Board of Regents. Nearly 300 colleges and universities around the country have made the test optional. The Committee seeks to determine if standardized tests are preventing qualified students from attending California's finest universities. This hearing will address some of the complex admissions issues that arise as public universities attempt to serve all of California's citizens, while enhancing the level of competitive excellence. It is aimed at a serious discussion of the merits of and concerns surrounding the SAT and ACT: their purpose, effectiveness, and other forms of assessment alternatives employed in other states and by private colleges.

The purpose of the hearing is to provide public awareness and information on the SAT and ACT as a university admissions tool. The hearing is open to the public. To RSVP or for more information, please call **Jamillah Moore or Allen Teng at (916) 322-4400.**

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FOR IMMEDIATE RELEASE
FEBRUARY 1, 1998

CONTACT: JAMILLAH MOORE
(916) 322-4400

STANDARDIZED TESTING EXAMINED BY SENATE COMMITTEE

Sacramento--Senator Teresa P. Hughes (D-Inglewood) announced today that the Senate Select Committee on Higher Education Admissions and Outreach will be holding a hearing on **Thursday, February 5, 1998,** at the State Capitol, to discuss the "Validation of Standardized Testing: The Role of the SAT and ACT in Undergraduate Admissions."

California University systems' major assessment vehicles, along with GPA, are the SAT(formerly known as the Scholastic Aptitude Test) and the ACT(formerly the American College Test). Since 1926, the SAT and ACT have served as the nation's most prominent college admission examinations, attempting to predict academic performance in college. According to the College Board, each year nearly two million college-bound students from more than 20,000 high schools take a standardized exam for college admissions.

Since the 1960's, the preponderance of colleges requiring standardized test results from applicants has dramatically increased as greater numbers of students compete for limited enrollment openings. SAT and ACT use has been justified as the universities' need to have a standardized measure to distinguish achievement amongst students with similar records of high academic performance.

As their use has increased, extensive research indicating that women and certain underrespresented groups have consistently scored lower on these examinations. Critics often state that the test is indicative not of academic qualifications but of socioeconomic resources. According to the Princeton Review there is a relationship between SAT scores and income. Student from households with incomes under $10,000 have an average score of 760 on the SAT, while students from households over $70,000 have an average score of 1000. Complicating the validity of these scores is the tremendous growth of test coaching courses that typically cost $500-700 and have documented average improvements of 100 points or more.

Currently, the University of California Board of Regents is considering proposals to modify the use of the SAT in admissions policies, while nearly 300 colleges and universities around the country have made the test optional in their admissions. "The Committee seeks to determine if standardized tests are preventing qualified students from attending California's finest universities," stated Hughes.

According to Hughes, "the Committee hearing will address some of the complex admissions issues that arise as public universities attempt to serve all of California's citizens, while enhancing the level of competitive excellence." The Senate Select Committee on Higher Education Admissions and Outreach will hear testimony from high school officials as well as personal accounts from students concerning the degree to which an SAT or ACT test score has become a determinate of the college choices students make.

The Senate Select Committee on Higher Education Admissions and Outreach will convene the hearing on **February 5, 1998, (upon adjournment of Session) from 10:00 a.m. to 4:00 p.m., at the State Capitol, Sacramento, Room 4203**

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VALIDATING STANDARDIZED TESTING:
The Role of the SAT and ACT in Undergraduate Admissions

February 5, 1997 (upon adjournment of floor session)
State Capitol, Room 4203

OPENING STATEMENT
Senator Teresa P. Hughes, Chair

CREATION OF THE SAT and ACT
History, Background and Purpose of the SAT and ACT exam
Warren Fox, The California Postsecondary Education Commission

STANDARDIZED ASSESSMENTS UP-CLOSE
Research Supporting Validity of Test
Wayne Camara, Director of Research, The College Board
Dallas Chapman, Assistant Vice President, ACT

STANDARDIZED TESTS AS A SELECTION TOOL
System representatives discuss the use of standardized exams
The University of California
Carla Ferri, Director of Undergraduate Admissions
Keith Widaman, Chair, Board of Admissions and Relations with Schools
Patrick S. Hayashi, Associate Vice Chancellor
Independent Colleges and Universities
William Tingley, VP Admissions and Financial Aid Occidental College
Michael Besseda, Assistant Vice President, Saint Mary's College
The California State University
Allison Jones, Senior Director Access and Retention
Nancy Sprotte, Coordinator of Enrollment Management Services

ALTERNATIVE STRATEGIES TO STUDENT ASSESSMENT
Other forms of standardized assessments Employed and Available
Eugene E. Garcia Latino Eligibility Task Force
Glen Singleton, Executive Director, Pacific Educational Group
Robert Linn, Co-Director, CRESS

RESEARCH ON STANDARDIZED TESTS
Robert Schaeffer, Educational Director, FAIRTEST
David Leonard, Professor of Political Science, UC Berkeley
Michael Hout, Professor of Sociology, UC Berkeley
Larger Societal and Community Ramifications
Joe Jaramillo, Staff Attorney, MALDEF
Ling-Chi Wang, President, Chinese for Affirmative Action

IMPACT OF STANDARDIZED TESTS WITHIN CALIFORNIA HIGH SCHOOLS:
How are High Schools Preparing Students to take the exam
Jeffrey Davis, Principal, Coronado High School
Thomas Brock, Principal, Gretchen Whitney High School
Diane Duncan, Counselor, Woodlands High School
Robert Collins, Director of Instruction, Los Angeles Unified School District
Paul Kanarek, President, The Princeton Review

CLOSING REMARKS:
Senator Teresa P. Hughes

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SENATE CONSTITUTIONAL AMENDMENT 7
(SENATOR TERESA HUGHES)
FACT SHEET

SUMMARY: Sponsored by Senator Hughes, Senate Constitutional Amendment 7 redefines the criteria for student admission to the University of California and the California State University. SCA 7 would change the definition by requiring UC and CSU to accept students who rank in the upper 12.5 percent and the upper 1/3 of their graduating class at each public high school.

PROBLEM: According to the Master Plan for Higher Education the state universities select first-time freshmen from the top one-third (33 1/3 percent) and the University of California from the top one-eighth (12.5 percent) of all graduates of public high schools in California. The current structure by which students are selected for admissions is not a true or equitable representation of the state's top percentile. Historically, the current structure by which students are selected statewide is not a fair process. The top percentile should be selected from the same background, resources and socioeconomic life skills that their classmates engage in. SCA 7 would eliminate invidious comparisons between economic advantaged and disadvantaged students and would focus on each individual's capacity to excel above their respective peers under comparable conditions.

BACKGROUND: Over the next ten years the number of public high school graduates is projected to increase nearly 50 percent. Participation in postsecondary education is also expected to increase by 455,000 students by the year 2005. With the continued population growth and changes in demographics we must begin to establish fundamentally sound alternatives to the admissions policy for public universities in order to address the needs of the new student population. This proposal is about defining how our institutions of higher learning should fulfill their obligation to meet the California State Legislature decree that those accepted into their institutions should reflect the ethnic, gender, and economic characteristics of the state's high school graduates. Providing real access to postsecondary education is the first step towards giving students real opportunities to become productive and economically stable citizens.

WHAT THE BILL DOES: Senate Constitutional Amendment 7 will assure that students who wish to attend UC and CSU compete for admissions amongst their peers, with individuals who come from similar socioeconomic backgrounds and resources. Under SCA 7 the top percentile will be defined at each public high school as oppose to statewide. SCA 7 will begin to level the playing field so that those students who do well and perform in the top percent of their graduating class have an opportunity to attend UC or CSU.

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THE CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

December 15, 1997

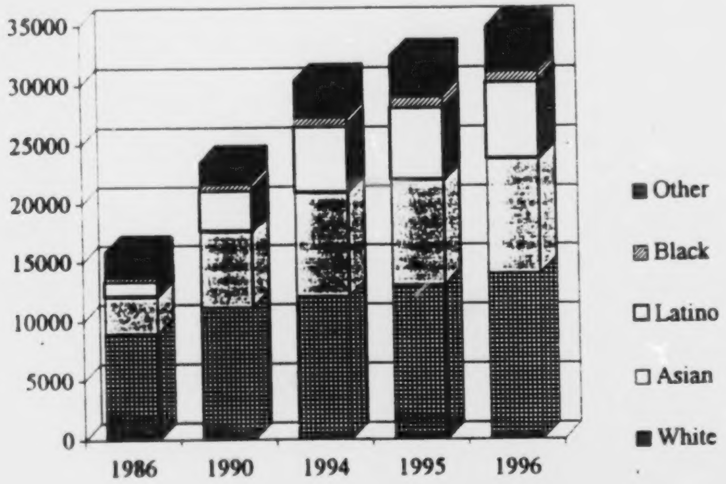
ELIGIBILITY OF CALIFORNIA'S 1996 HIGH SCHOOL GRADUATES FOR ADMISSION TO THE STATE'S PUBLIC UNIVERSITIES

A Report of the California Postsecondary Education Commission

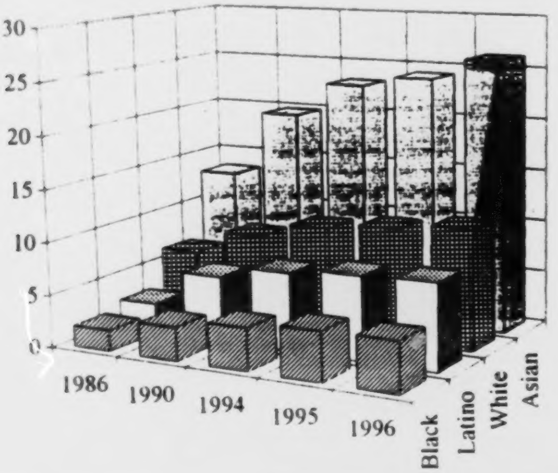
CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
1303 J Street • Suite 500 • Sacramento, California 95814-2938

Of California's 1995-96 public high school twelfth graders, 34,837 took AP examinations -- an increase of 48 percent over the 23,533 students who sat for these tests in 1990. This increase is comparable to that which occurred between 1986 and 1990, as Display 8 illustrates. Students from all racial-ethnic groups contributed to this increase. The largest proportional growth occurred among Black and Latino twelfth graders, increasing by 63 percent and 88 percent, respectively. A 51 percent expansion occurred among Asian students, which was above the average for the state. While the proportion of White twelfth graders taking AP tests only increased by 25 percent, they contributed the largest number to the statewide increase.

DISPLAY 8 California Public High School Twelfth Graders Taking Advanced Placement Exams, 1986, 1990, and 1994 to 1996



DISPLAY 9 Participation of California Twelfth Graders in Advanced Placement Exams, by Racial-ethnic Group, 1986, 1990, and 1994 to 1996



While there was a substantial increase in the number and proportion of Black and Latino students who took AP examinations, their overall participation levels continued to lag behind those of Asian and White students, as Display 9 indicates. Approximately, 26 percent of Asian graduates and 11.5 percent of White graduates took AP examinations during their senior year compared to 4.8 percent of Black graduates and 8.1 percent of Latino graduates. While Asian graduates comprised 14.4 percent of the 1996 graduates, they accounted for 45 percent of the seniors who took the Calculus AP tests. Only on the Spanish Language AP test did Latino seniors constitute a proportion comparable to their presence among public high school graduates; they were 30 percent of graduates and 30 percent of the twelfth graders taking the AP Spanish Language examination.

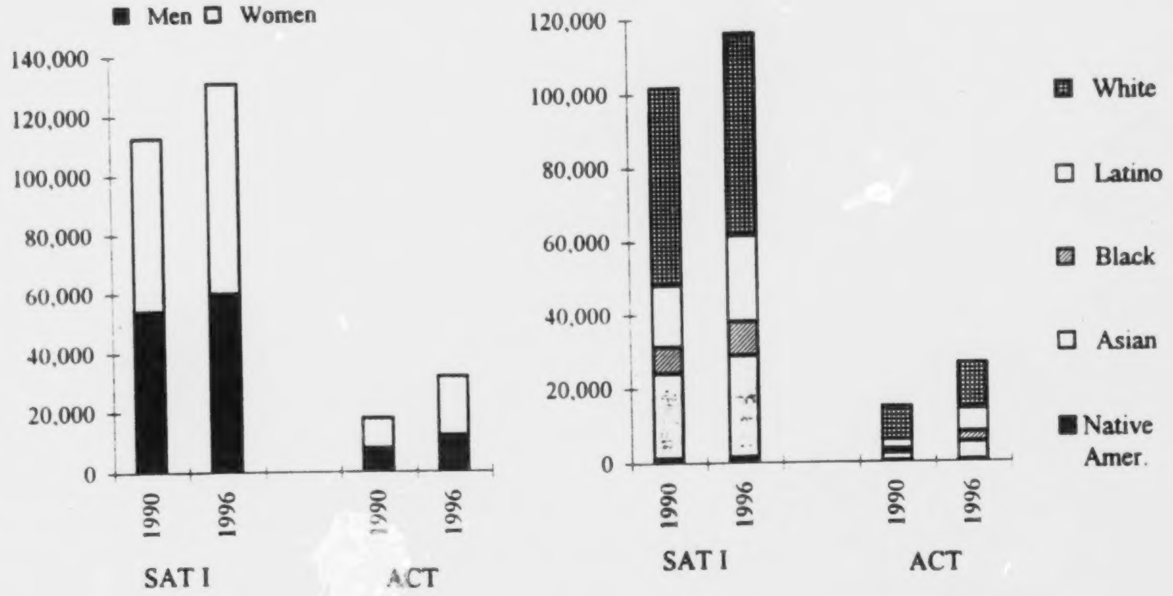
College admission test participation and performance

Another facet of the behavior of California high school students that bears on their eligibility for university admission is their participation in, and performance on, college admission examinations -- the SAT I and SAT II and the ACT examinations. Participation and performance information about these tests are reported for all California high school graduates but does not differentiate between public and private high school graduates.

Performance on the SAT I

While the number of public high school graduates increased 9.5 percent between 1990 and 1996, the number of graduates taking the SAT I examination increased by approximately 18 percent -- from 112,577 to 132,711-- as Display 10 illustrates. Once again, growth in participation was not evenly distributed across student subgroups. The number of women taking the SAT I grew by 20 percent while the number of men grew 12 percent. Asian students taking the test grew by 20 percent; 29 percent more Black students took the test; the number of Latino students taking the test increased by 42 percent; 15 percent more Native American students took the test; and 1.5 percent more White students sat for this examination.

DISPLAY 10 California Students Taking the SAT I and ACT Exams in 1990 and 1996

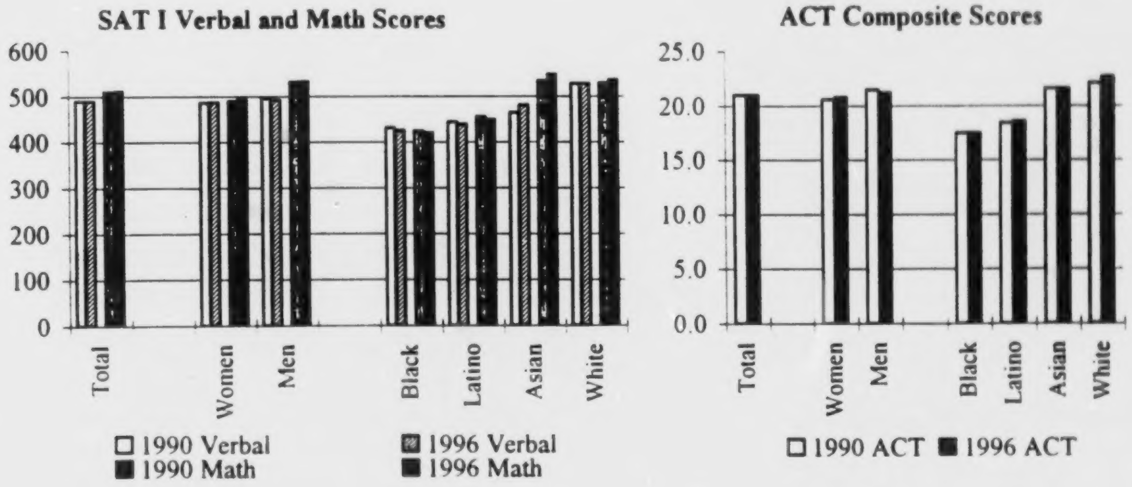


Recent information published by the California Department of Education delineates the changes in participation of public high school graduates on the SAT I examination between 1990 and 1996. The proportion of public high school graduates taking the SAT I grew from 38 percent in 1990 to 41 percent in 1996. The proportion of men participating increased 1.7 percentage points while the proportion of women grew by 3.4 percentage points. Among Asian graduates, the proportion taking the SAT I rose by three percentage points; the proportion of Black graduates taking the test increased by 6.5 percentage points. The proportion of Latino graduates who took the SAT I grew by one percentage point, while the proportion taking the test increased by 2.5 percentage points among White graduates.

Overall, the average scores for California public high school seniors taking the SAT I Math and Verbal tests changed slightly between 1990 and 1996, with the average Math score improving one point, as Display 11 illustrates. However, change did not occur uniformly across student subgroups. Among men, the average Verbal SAT I score was unchanged while the Math scores improved slightly. For women taking the test, their average Verbal score rose slightly while their average Math score was up four points. Both Verbal and Math scores of Asian and White students taking the SAT I improved; these scores for Black and Latino students declined between 1990 and 1996.

Comparisons of SAT I scores between 1990 and 1996 are complicated by two factors: (1) In 1994, the nature and contents of the SAT I Verbal and Math tests changed somewhat; (2) In 1995, the College Board, in conjunction with the Educational Testing Service, re-centered the national average score on each test to 500. The 1990 SAT I scores on Display 11 were converted to the re-centered scale in order to determine their comparability to scores reported for 1996.

DISPLAY 11 Average Verbal and Math SAT I Scores and Average ACT Composite Scores for Californians in 1990 and 1996



Performance on the ACT

Even more dramatic growth occurred relative to the ACT examination in which the number of California seniors taking that test increased by 77 percent between 1990 and 1996 -- from 17,938 to 31,663. While these are relatively small numbers compared to SAT I participants, they do reflect a substantial expansion in the set of students taking the tests needed for university admission. Again, growth was differential across subgroups. The number of women taking the ACT increased by 20 percent while the number of men grew by 12 percent. While the number of Asian students taking the ACT increased by 129 percent and the number of Black and Latino students who sat for this test increased by 143 percent, the number of White students rose by 40 percent.

Despite this relatively large increase in the number of students taking the ACT in California, the statewide average score was the same in 1996 as it was in 1990 -- 21.0 on a scale of 1 to 36. The average score for men declined slightly, while that of women increased slightly. The average scores for Asian test takers and for Black test takers were unchanged, 21.6 and 17.5, respectively, while the average score for Latino students increased from 18.4 to 18.6 and the average score for White students rose from 22.1 to 22.7.

Statewide student grade-point averages

No population data are available for the scholastic achievement of high school graduates, as measured by their average grades. However, each of the last three eligibility studies estimated statewide grade point averages based on each study's sample populations. Between 1983 and 1990, the scholastic achievement of public high school graduates, as measured by their grade point averages, has improved for all student subgroups, as shown in Display 12 below. Once the 1996 study is completed, the chart will be modified to include information about the estimated grade point averages for the public high school class of 1996.

DISPLAY 12 Estimated Statewide Grade-Point Averages for Public High School Graduates, 1983, 1986, and 1990

	1983	1986	1990
All Graduates statewide	2.62	2.60	2.68
Asian Graduates	2.96	2.96	3.11
Black Graduates	2.26	2.29	2.33
Latino Graduates	2.42	2.44	2.44
White Graduates	2.69	2.65	2.74

THE UNIVERSITY OF CALIFORNIA

FRESHMAN PROFILE

The Freshman Profile summarizes by UC campus the qualifications of applicants and admitted freshmen for fall 1996. ***Please be cautious in drawing conclusions from this information.*** The data are useful only as a general guide to selectivity, rather than to predict your chances for admission to a particular campus or program. The data reflect the selection process in place for fall 1996 applicants. Since then, the University's admission guidelines have been revised. The selection process for the fall 1998 term will be different and the results may differ significantly.

Many campuses use SAT II scores in the selection process, and these are not included in the profile. In addition, the data for several colleges on a campus may be grouped together, which will mask differences in the degree of competition for admission among them. Some campuses and colleges admit students directly into individual majors and the degree of competition among majors may vary widely.

ALL PROGRAMS EXCEPT ENGINEERING

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
BERKELEY						
2.82–2.99			185/5 **3%**	94/4 **4%**	14/0 **0%**	293/9 **3%**
3.00–3.29	89/2 **2%**	374/24 **6%**	823/98 **12%**	631/78 **12%**	82/6 **7%**	1999/208 **10%**
3.30–3.59	64/3 **5%**	450/52 **12%**	1267/206 **16%**	1269/183 **14%**	183/49 **27%**	3233/493 **15%**
3.60–3.89	37/2 **5%**	394/80 **20%**	1542/330 **21%**	2071/507 **24%**	415/235 **57%**	4459/1154 **26%**
3.90–3.99	2/0 **0%**	66/13 **20%**	339/83 **24%**	544/180 **33%**	147/118 **80%**	1098/394 **36%**
4.00	11/0 **0%**	209/63 **30%**	1570/473 **30%**	4322/2220 **51%**	2430/2216 **91%**	8542/4972 **58%**
OVERALL	203/7 **3%**	1493/232 **16%**	5726/1195 **21%**	8931/3172 **36%**	3271/2624 **80%**	21457/7508 **35%**
DAVIS						
2.82–2.99			217/19 **9%**	107/21 **20%**	8/5 **63%**	332/45 **14%**
3.00–3.29	95/13 **14%**	495/102 **21%**	1185/334 **28%**	590/383 **65%**	47/42 **89%**	2412/874 **36%**
3.30–3.59	81/24 **30%**	577/237 **41%**	1408/929 **66%**	964/915 **95%**	67/67 **100%**	3097/2172 **70%**
3.60–3.89	40/13 **33%**	470/299 **64%**	1632/1402 **86%**	1308/1285 **98%**	139/136 **98%**	3589/3135 **87%**
3.90–3.99	3/2 **67%**	65/53 **82%**	306/283 **92%**	335/333 **99%**	51/49 **96%**	760/720 **95%**
4.00	18/9 **50%**	197/164 **83%**	1238/1175 **95%**	2365/2343 **99%**	669/641 **96%**	4487/4332 **97%**
OVERALL	237/61 **26%**	1804/855 **47%**	5986/4142 **69%**	5669/5280 **93%**	981/940 **96%**	16230/11666 **72%**

Grade point average (GPA) intervals are listed vertically and Scholastic Aptitude Test I (SAT I) composite score (mathematics plus verbal) intervals are listed horizontally. Each block in the chart represents a pool of applicants with GPA and SAT I scores within the specific ranges indicated. In each block, the first figure in the block is the total number of applicants and the second figure is the number of applicants regularly admitted. The figure in bold type on the second line is the percentage of students who were regularly admitted.

GPA is defined as a student's GPA in the "a–f" requirements as calculated by a UC admissions evaluator or, if the evaluated GPA was not available, the student's GPA as self-reported on the application for admission and scholarships.

The campus overall total includes freshman applicants whose GPA and/or SAT composite score were out of range or unavailable. Data as of August 1996.

ENGINEERING PROGRAMS

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
BERKELEY						
2.82–2.99			24/0 **0%**	9/0 **0%**	1/0 **0%**	34/0 **0%**
3.00–3.29	6/0 **0%**	32/0 **0%**	88/1 **1%**	87/7 **8%**	8/1 **13%**	221/9 **4%**
3.30–3.59	5/0 **0%**	43/0 **0%**	145/3 **2%**	188/18 **10%**	31/11 **35%**	412/32 **8%**
3.60–3.89	5/0 **0%**	51/0 **0%**	219/11 **5%**	346/77 **22%**	124/62 **50%**	745/150 **20%**
3.90–3.99	0/0 **0%**	9/1 **11%**	43/2 **5%**	125/36 **29%**	40/27 **68%**	217/66 **30%**
4.00	0/0 **0%**	38/1 **3%**	237/48 **20%**	842/395 **47%**	733/639 **87%**	1850/1083 **59%**
OVERALL	16/0 **0%**	173/2 **1%**	756/65 **9%**	1597/533 **33%**	937/740 **79%**	3737/1367 **37%**
DAVIS						
2.82–2.99			20/1 **5%**	7/0 **0%**	1/1 **100%**	28/2 **7%**
3.00–3.29	4/0 **0%**	32/1 **3%**	126/39 **31%**	80/41 **51%**	9/9 **100%**	251/90 **36%**
3.30–3.59	3/0 **0%**	35/1 **3%**	167/83 **50%**	160/138 **86%**	16/15 **94%**	381/237 **62%**
3.60–3.89	2/0 **0%**	24/8 **33%**	173/131 **76%**	232/213 **92%**	37/36 **97%**	468/388 **83%**
3.90–3.99	0/0 **0%**	5/4 **80%**	45/38 **84%**	74/73 **99%**	15/14 **93%**	139/129 **93%**
4.00	0/0 **0%**	16/5 **31%**	196/175 **89%**	450/447 **99%**	210/201 **96%**	872/828 **95%**
OVERALL	9/0 **0%**	112/19 **17%**	727/467 **64%**	1003/912 **91%**	288/276 **96%**	2337/1731 **74%**

LEGEND applicants/regular admits
percent regularly admitted

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ALL PROGRAMS EXCEPT ENGINEERING

GPA ▼	SATCOMPOSITE 490-790	800-990	1000-1190	1200-1390	1400-1600	OVERALL
IRVINE						
2.82-2.99			299/14 **5%**	99/37 **37%**	9/5 **56%**	407/56 **14%**
3.00-3.29	137/2 **1%**	677/78 **12%**	1198/436 **36%**	483/374 **77%**	34/26 **76%**	2529/916 **36%**
3.30-3.59	89/18 **20%**	727/339 **47%**	1409/1154 **82%**	754/732 **97%**	52/51 **98%**	3031/2294 **76%**
3.60-3.89	40/25 **63%**	521/436 **84%**	1439/1369 **95%**	988/978 **99%**	95/94 **99%**	3083/2902 **94%**
3.90-3.99	8/5 **63%**	80/75 **94%**	244/239 **98%**	241/239 **99%**	26/26 **100%**	599/584 **97%**
4.00	18/14 **78%**	222/211 **95%**	1089/1068 **98%**	1676/1661 **99%**	431/424 **98%**	3436/3378 **98%**
OVERALL	292/64 **22%**	2227/1139 **51%**	5678/4280 **75%**	4241/4021 **95%**	647/626 **97%**	15008/10379 **69%**
LOS ANGELES						
2.82-2.99			286/2 **1%**	133/2 **2%**	10/1 **10%**	429/5 **1%**
3.00-3.29	136/1 **1%**	708/26 **4%**	1289/124 **10%**	693/62 **9%**	66/12 **18%**	2892/225 **8%**
3.30-3.59	108/0 **0%**	828/103 **12%**	1936/362 **19%**	1365/201 **15%**	148/55 **37%**	4385/721 **16%**
3.60-3.89	58/2 **3%**	653/128 **20%**	2245/488 **22%**	2100/798 **38%**	300/246 **82%**	5356/1662 **31%**
3.90-3.99	11/0 **0%**	104/25 **24%**	427/103 **24%**	521/315 **60%**	112/109 **97%**	1175/552 **47%**
4.00	19/1 **5%**	317/92 **29%**	2034/742 **36%**	4119/3519 **85%**	1817/1733 **95%**	8306/6087 **73%**
OVERALL	332/4 **1%**	2610/374 **14%**	8217/1821 **22%**	8931/4897 **55%**	2453/2156 **88%**	25003/9478 **38%**
RIVERSIDE						
2.82-2.99			228/51 **22%**	80/48 **60%**	1/0 **0%**	309/99 **32%**
3.00-3.29	133/38 **29%**	501/273 **54%**	754/569 **75%**	261/232 **89%**	12/12 **100%**	1661/1124 **68%**
3.30-3.59	87/66 **76%**	494/442 **89%**	755/713 **94%**	317/304 **96%**	11/10 **91%**	1664/1535 **92%**
3.60-3.89	40/34 **85%**	343/309 **90%**	762/727 **95%**	412/406 **99%**	29/29 **100%**	1586/1505 **95%**
3.90-3.99	7/6 **86%**	40/36 **90%**	133/129 **97%**	91/91 **100%**	10/10 **100%**	281/272 **97%**
4.00	11/7 **64%**	140/131 **94%**	527/514 **98%**	633/624 **99%**	168/168 **100%**	1479/1444 **98%**
OVERALL	278/151 **54%**	1518/1191 **78%**	3159/2703 **86%**	1794/1705 **95%**	231/229 **99%**	9170/6675 **73%**

ENGINEERING PROGRAMS

GPA ▼	SAT COMPOSITE 490-790	800-990	1000-1190	1200-1390	1400-1600	OVERALL
IRVINE						
2.82-2.99			26/4 **15%**	9/1 **11%**	1/1 **100%**	36/6 **17%**
3.00-3.29	5/0 **0%**	37/10 **27%**	103/60 **58%**	57/47 **82%**	4/4 **100%**	207/121 **58%**
3.30-3.59	8/1 **13%**	55/39 **71%**	149/124 **83%**	108/101 **94%**	15/15 **100%**	335/280 **84%**
3.60-3.89	3/2 **67%**	49/45 **92%**	146/139 **95%**	148/144 **97%**	18/18 **100%**	364/348 **96%**
3.90-3.99	1/1 **100%**	13/12 **92%**	30/27 **90%**	38/37 **97%**	2/2 **100%**	84/79 **94%**
4.00	2/1 **50%**	28/24 **86%**	136/132 **97%**	247/246 **100%**	70/70 **100%**	483/473 **98%**
OVERALL	20/5 **25%**	182/130 **71%**	590/486 **82%**	607/576 **95%**	110/110 **100%**	1642/1345 **82%**
LOS ANGELES						
2.82-2.99			34/0 **0%**	10/0 **0%**	4/1 **25%**	48/1 **2%**
3.00-3.29	15/0 **0%**	51/0 **0%**	118/4 **3%**	95/5 **5%**	7/1 **14%**	286/10 **3%**
3.30-3.59	18/0 **0%**	72/0 **0%**	188/12 **6%**	171/47 **27%**	26/15 **58%**	475/74 **16%**
3.60-3.89	5/0 **0%**	68/1 **1%**	237/30 **13%**	302/171 **57%**	65/53 **82%**	677/255 **38%**
3.90-3.99	1/0 **0%**	14/0 **0%**	45/13 **29%**	77/58 **75%**	23/22 **96%**	160/93 **58%**
4.00	2/0 **0%**	38/3 **8%**	193/65 **34%**	554/486 **88%**	356/336 **94%**	1143/890 **78%**
OVERALL	41/0 **0%**	243/4 **2%**	815/124 **15%**	1209/767 **63%**	481/428 **89%**	3050/1332 **44%**
RIVERSIDE						
2.82-2.99			29/10 **34%**	5/2 **40%**	1/1 **100%**	35/13 **37%**
3.00-3.29	11/5 **45%**	37/18 **49%**	71/54 **76%**	36/33 **92%**	5/4 **80%**	160/114 **71%**
3.30-3.59	10/6 **60%**	42/38 **90%**	86/79 **92%**	57/53 **93%**	3/3 **100%**	198/179 **90%**
3.60-3.89	2/2 **100%**	34/28 **82%**	73/67 **92%**	40/37 **93%**	11/11 **100%**	160/145 **91%**
3.90-3.99	1/1 **100%**	7/6 **86%**	16/13 **81%**	11/11 **100%**	4/4 **100%**	39/35 **90%**
4.00	0/0 **0%**	17/13 **76%**	53/46 **87%**	74/74 **100%**	19/19 **100%**	163/152 **93%**
OVERALL	24/14 **58%**	137/103 **75%**	328/269 **82%**	223/210 **94%**	43/42 **98%**	967/713 **74%**

LEGEND applicants/regular admits
percent regularly admitted

ALL PROGRAMS EXCEPT ENGINEERING

SAN DIEGO

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
2.82–2.99			254/0 0%	122/0 0%	12/0 0%	388/0 0%
3.00–3.29	96/0 0%	521/5 1%	1234/74 6%	691/82 12%	254/0 37%	122 7%
3.30–3.59	63/0 0%	549/49 9%	1709/279 16%	1188/388 33%	130/111 85%	3639/827 23%
3.60–3.89	35/9 26%	421/120 29%	1831/596 33%	1756/1299 74%	229/218 95%	4272/2242 52%
3.90–3.99	6/1 17%	49/16 33%	308/172 56%	405/374 92%	82/80 98%	850/643 76%
4.00	12/9 75%	176/84 48%	1412/1075 76%	3128/3014 96%	1259/1229 98%	5987/5411 90%
OVERALL	212/19 9%	1716/274 16%	6748/2196 33%	7290/5157 71%	1771/1660 94%	19542/9506 49%

SANTA BARBARA

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
2.82–2.99			490/83 17%	175/110 63%	11/11 100%	676/204 30%
3.00–3.29	135/21 16%	889/332 37%	1937/1260 65%	739/685 93%	42/41 98%	3742/2339 63%
3.30–3.59	97/50 52%	805/592 74%	2033/1905 94%	1017/1001 98%	70/70 100%	4022/3618 90%
3.60–3.89	36/28 78%	475/446 94%	1723/1706 99%	1180/1171 99%	77/76 99%	3491/3427 98%
3.90–3.99	3/2 67%	64/64 100%	279/278 100%	220/220 100%	22/21 95%	586/585 99%
4.00	9/6 67%	152/148 97%	1071/1067 100%	1412/1404 99%	253/249 98%	2897/2874 99%
OVERALL	280/107 38%	2385/1582 66%	7533/6299 84%	4743/4591 97%	475/468 99%	18124/13697 76%

SANTA CRUZ

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
2.82–2.99			306/97 32%	123/71 58%	9/9 100%	438/177 40%
3.00–3.29	93/31 33%	471/295 63%	1096/894 82%	568/524 92%	44/42 95%	2272/1786 79%
3.30–3.59	88/68 77%	427/397 93%	1094/1050 96%	681/667 98%	75/75 100%	2365/2257 95%
3.60–3.89	35/28 80%	283/254 90%	890/869 98%	805/799 99%	109/109 100%	2122/2059 97%
3.90–3.99	3/3 100%	29/25 86%	143/142 99%	146/146 100%	30/30 100%	351/346 99%
4.00	7/5 71%	83/80 96%	491/481 98%	850/846 100%	268/267 100%	1699/1679 99%
OVERALL	226/135 60%	1293/1051 81%	4020/3533 88%	3173/3053 96%	535/532 99%	11073/8813 80%

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ENGINEERING PROGRAMS

SAN DIEGO

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
2.82–2.99			39/0 0%	9/0 0%	2/0 0%	50/0 0%
3.00–3.29	20/0 0%	69/1 1%	197/16 8%	118/20 17%	10/1 10%	414/38 9%
3.30–3.59	13/0 0%	97/15 15%	241/44 18%	249/84 34%	28/21 75%	628/164 26%
3.60–3.89	7/0 0%	59/18 31%	327/111 34%	407/303 74%	77/73 95%	877/505 58%
3.90–3.99	0/0 0%	13/7 54%	69/27 39%	110/99 90%	30/29 97%	222/162 73%
4.00	2/0 0%	67/29 43%	317/234 74%	817/794 97%	475/467 98%	1678/1524 91%
OVERALL	42/0 0%	305/70 23%	1190/432 36%	1710/1300 76%	622/591 95%	4148/2447 59%

SANTA BARBARA

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
2.82–2.99			13/1 8%	7/4 57%	0/0 0%	20/5 25%
3.00–3.29	5/0 0%	17/0 0%	92/57 62%	63/57 90%	5/5 100%	182/119 65%
3.30–3.59	5/0 0%	16/12 75%	101/94 93%	93/92 99%	6/6 100%	221/204 92%
3.60–3.89	0/0 0%	10/7 70%	108/106 98%	119/119 100%	16/16 100%	253/248 98%
3.90–3.99	0/0 0%	2/2 100%	14/14 100%	29/29 100%	4/4 100%	49/49 100%
4.00	0/0 0%	2/2 100%	70/70 100%	141/141 100%	37/37 100%	250/250 100%
OVERALL	10/0 0%	47/23 49%	398/342 86%	452/442 98%	68/68 100%	1089/902 83%

SANTA CRUZ

GPA ▼	SAT COMPOSITE 490–790	800–990	1000–1190	1200–1390	1400–1600	OVERALL
2.82–2.99			7/3 43%	0/0 0%	0/0 0%	7/3 43%
3.00–3.29	5/1 20%	14/9 64%	31/25 81%	10/10 100%	1/1 100%	61/46 75%
3.30–3.59	3/2 67%	21/18 86%	22/21 95%	18/18 100%	3/3 100%	67/62 93%
3.60–3.89	2/2 100%	10/9 90%	30/27 90%	19/19 100%	3/3 100%	64/60 94%
3.90–3.99	0/0 0%	2/2 100%	2/2 100%	3/3 100%	1/1 100%	8/8 100%
4.00	0/0 0%	1/1 100%	17/17 100%	18/18 100%	10/10 100%	46/46 100%
OVERALL	10/5 50%	48/39 81%	109/95 87%	68/68 100%	18/18 100%	303/236 78%

LEGEND applicants/regular admits
percent regularly admitted

University of California Follow-up Analyses of the 1996 CPEC Eligibility Study

University of California
Office of the President
Student Academic Services

December 1997

EXECUTIVE SUMMARY

This report highlights the results of the most recent CPEC Eligibility Study of 1996 graduates in the context of actual UC applicant, admit, and enrollment information. Additionally information related to future research about student preparation and alternative eligibility criteria is presented. Several simulations of alternative eligibility criteria are provided to illustrate the ramifications of changes to the University's current grade-point average and standardized test requirements.

Fully Eligible Graduates

Reversing a trend of improved eligibility rates across the 1980s, lower percentages of the 1996 public high school graduates were classified as eligible to either the UC or CSU system. Eleven point one (11.1) percent of the State's 1996 public high school graduates were estimated to be fully eligible for UC admission and, similarly, 29.5 percent of the graduating class met CSU entrance requirements. In other words, each of the two systems were capturing approximately 89 percent of the Master Plan goal (11.1% out of 12.5% and 29.5% out of 33.3% for UC and CSU, respectively).

Over ninety percent of the public high school graduates who were fully eligible obtained an a-f grade-point average (GPA) of 3.3 or greater. The remaining fully eligible students were deemed so based on an index combination of GPA and SAT-I or ACT test score. Had the index criteria not been a component of the eligibility policy, the statewide eligibility rate would have been lower by 8 percent, yielding an overall eligibility rate of approximately 10 percent. The greatest impact of the index criteria is on African American and Latino rates – index eligibility contributes 15 percent and 12 percent to these respective subgroup rates. A negligible proportion of fully eligible students (0.4 percent overall) are eligible by test scores alone. Students are classified under this last category only if they are *not* eligible by GPA or index criteria.

Findings from this study offer a preview of the challenges facing educators who must adapt to a rapidly growing and more diverse student class. In 1990, Latinos represented 23.3 percent of public high school graduates and by 1996 this group increased by 40.2 percent, comprising 30.3 percent of the senior class. In 1996, African American and Latino students represented 37.8 percent of graduates, compared to 30.7 percent in 1990. By the year 2006, CPEC projects that these two student groups with traditionally low eligibility rates will comprise 45.1% of the public high school graduating class.

While the overall enrollment rate of the estimated eligible pool is 65%, the University enrolls approximately 78 percent and 98 percent of the estimated numbers of eligible Latino and African American graduates. High school graduates who participated in a University outreach program typically comprise approximately one-fourth of each fall's African American and Latino enrollments. Statewide eligibility estimates do *not* reflect the results of special outreach efforts which are confined to less than 5 percent of graduates who meet the racial/ethnic and socioeconomic profile that these programs have been designed to serve. In other words, the eligibility study sampling design offers reliable estimates of the State's eligibility rates, however, the success of small program efforts are statistically incapable of shifting these overall rates.

Potentially Eligible Graduates

Compared to the fully eligible population, another group of graduates is identified as potentially eligible because they have achieved the requisite scholarship and subject standards while they have not taken the full battery of required standardized tests. Potentially eligible students represent 9.5 percent of the 1996 graduating class, up from 6.5 percent in 1990 and 5.0 percent in 1986.

Potentially eligible students generally take either the SAT I or ACT examination – of the overall population, 85.7 percent have done so. Varying proportions of graduates of the different subgroups complete this criteria. The great majority of potentially eligible students (92 percent) have a GPA of at least 3.3 and this also is true of the subgroup who take either the ACT or SAT I. More than 87 percent of potentially eligible students have taken the SAT I or ACT and also have a GPA of 3.3 or greater. This finding is fairly consistent across ethnic groups, with somewhat higher proportions of the Latino (88.7 percent) and Asian American (92.4 percent) potentially eligible subgroups having achieved the 3.3 GPA cutoff and taken a SAT I or ACT exam.

Few potentially eligible students took one or two of the required SAT II subject tests.. The greatest proportion of potentially eligible students with a SAT II exam was 6.9 percent, pertaining to both the Asian American and Latino subgroups taking the Math subject test. Overall, 3.4 percent took the Writing test, 4.6 percent took the Math test, and 3.3 percent had a third subject test score.

Ineligible Graduates

Roughly 80 percent of the 1996 graduates are UC Ineligible. Low test scores rarely are the only reason for a student's ineligibility – about 3 percent of ineligible students were deemed so because of an inadequate combination of grades and test scores. The vast majority, approximately 62.6 percent of graduates, are far from completion of the college preparatory course pattern. Of the ineligible population, close to 17 percent simply lack a few required courses. Gender and racial/ethnic group findings regarding ineligible students were consistent with those of the overall population

Simulated Eligibility Rates under Alternate Eligibility Criteria

If the University were to maintain its GPA cutoff at 3.3 and completely eliminate the role of tests in the eligibility determination, a number of students would become eligible while others would become ineligible. More specifically, students who met the index criteria would become ineligible and potentially eligible students who had the 3.3 GPA minimum would be deemed eligible. The results of this simulated eligibility scenario yield an overall eligibility rate 18.7 percent, with the following ethnic subgroup rates: African American—5.8 percent; Latino – 6.9 percent; Asian American – 41.5 percent; and white – 22.5 percent.

Simulations thus far conducted illustrate the phenomenon that as long as there is a 12.5 percent cap on the University's overall eligibility rate, rates for graduates of underrepresented ethnic backgrounds are bound to be considerably lower than the rates traditionally recorded for graduates of Asian American and white descent.

By raising the GPA requirement and eliminating the test component, the combined portions of the groups formerly labeled fully and potentially eligible offers a different mixture of students that, together, can compose a population of approximately 12.5 percent. A simulation that entails a minimum GPA of 3.65 with no standardized test requirement produces as overall eligibility rate of 12.78 percent. Under this scenario, eligibility rates of white graduates increased by 17 percent (from 12.7 to 14.8) and the Latino eligibility rate increased by 5 percent (from 3.8 to 4.0). In contrast, proportionately fewer African American graduates within the fully and potentially eligible groups had achieved a 3.65 or greater GPA. The African American eligibility rate falls from 2.8 percent to 2.3 percent, representing an 18 percent decline. Also striking is the negligible shift in the Asian American eligibility rate which drops by approximately one percent, from 30.0 percent down to 28.98 percent.

Another simulation presents the manner in which an index (a weighted combination of a minimum GPA and SAT I (or ACT) test score) can be established to define the top 12.5

percent. The results of this simulation show that the combined group of fully and potentially eligible students who have a GPA of 3.35 or greater and also meet the index criteria is less ethnically diverse than the currently eligible population. The African American eligibility rate declines from 2.8 percent to 2.6 percent. Eligibility rates for Latinos and Asian Americans remain fairly constant while the eligibility rate for white graduates expands from 12.7 percent to 15.6 percent .

Implications for Further Research

Factors effecting students' academic preparation and enrollment choices extend beyond the confines of a study of high school graduates' transcripts. For instance, some of the most well qualified graduates in California are classified as potentially eligible simply because they do not choose to or need to take the SAT II tests to be considered for admission at a competitive institution. The vast literature about circumstances and experiences that govern student behavior conclude that the steadiness of enrollment rates is a function of social, cultural, and environmental factors, such as the quality of prior educational experience, the economy, counseling and guidance, and peer group influences. Follow-up studies, in the form of student surveys and an assessment of the linkages between the high school and University environments, are needed to ascertain why academically qualified students do not take the complete set of required tests.

Should BOARS consider eligibility defined by grade-point average alone or some combination of academic performance indicators, further analyses are warranted. Specifically, it would be important to identify how the redefined population compares to the current population in terms of academic measures, such as GPA, test scores (to the extent available), and quality of a-f courses completed. In addition, it would behoove the University to gather information regarding the proclivity of formerly potentially eligible students to apply and attend the institution, if revised eligibility requirements were to include them in the fully eligible pool.

OVERVIEW OF THE 1996 CPEC ELIGIBILITY STUDY FINDINGS

The Master Plan for Higher Education in California recommends that the University of California set its freshman eligibility criteria so that the top one-eighth, or 12.5 percent, of the State's public high school graduates are eligible for admission. Similarly, the Master Plan recommends that the California State University System admit from the top 33.3 percent of the public high school graduating class. To document the actual eligibility rates of high school graduates, the California Postsecondary Education Commission (CPEC), in cooperation with the University and the California State University (CSU), periodically reviews the academic preparation of public high school graduates. To date, there have been eight such studies, the first dating back to 1955. This report highlights the results of the most recent CPEC Eligibility Study of 1996 graduates in the context of actual UC applicant, admit, and enrollment information. Additionally, this report raises important questions for future research about student preparation and alternative eligibility criteria. Several alternative eligibility criteria are presented to illustrate the ramifications of changes to the University's current grade-point average and standardized test requirements. An in-progress CPEC report is provided as Attachment I. Included in the CPEC report is an overview of the history of Eligibility Studies, sampling and evaluation methodologies, and a detailed summary of UC and CSU eligibility rates for the overall 1996 public high school graduating class and subgroups by gender, ethnicity, and regional sectors of the State.

Eligibility for UC and CSU rose dramatically during the 1980s, with the most notable gains for students of all gender and ethnic subgroups, occurring between 1986 and 1990. During this time period, the estimated percent of fully eligible University students rose from 9.1 percent to 12.3 percent, representing 35 percent growth. African American graduates, traditionally the lowest performing in terms of University eligibility, achieved eligibility at a rate of 2.3 percent in 1986 and their rate increased to 5.1 percent in 1990. Similarly, the Latino eligibility rate improved – from 3.1 percent in 1986 to 3.9 percent in 1990. Paralleling gains in University of California eligibility rates, public high school graduates' eligibility rates for the California State University system climbed over seven percentage points, from 27.5 percent in 1986 to 34.6 percent in 1990.

Fully Eligible Graduates of 1996

Reversing a trend of improved eligibility rates, lower percentages of the 1996 public high school graduates were classified as eligible to either the UC or CSU system. Eleven point one (11.1) percent of the State's 1996 public high school graduates were estimated to be fully eligible for UC admission and, similarly, 29.5 percent of the graduating class met CSU entrance requirements. In other words, each of the two systems were capturing approximately 89 percent of the Master Plan goal (11.1% out of 12.5% and 29.5% out of 33.3% for UC and CSU, respectively). The 1990 to 1996 shift in eligibility rates is shown in Display 1, for the University of California and in Display 2, for the California State University system.

An eligibility rate is a statistical estimate that is associated with a margin of error, or precision level, indicating that the actual rate falls within a probable range. The precision level for the 11.1 percent figure is .68, denoting that the actual UC eligibility rate falls between 10.4 percent and 11.8 percent. CSU's eligibility rate has a precision level of .76, establishing the actual rate in the 28.8 to 30.4 percent range.[1] It is important to observe the precision levels associated with each of the eligibility estimates because the actual rate lies somewhere between its upper and lower bounds. Attachment I provides complete details about the upper and lower bounds of all eligibility rates calculated for 1996 graduates.

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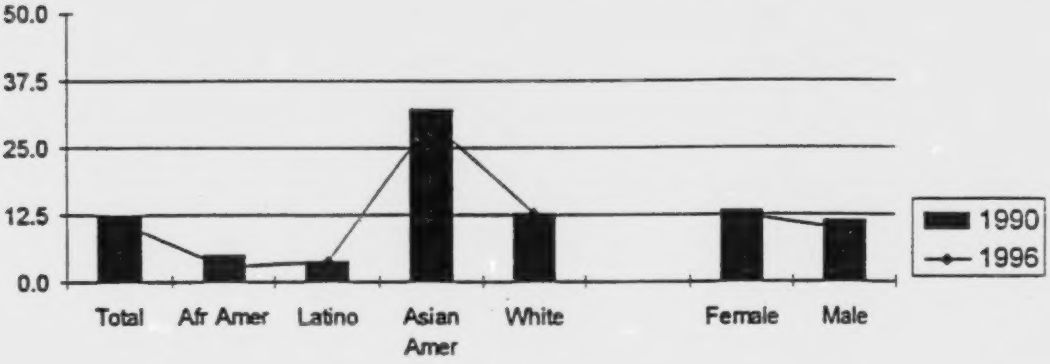
[1] All rates generated by this study are statistically significant at the 95 percent confidence level. Gender, racial/ethnic, and school type (rural, urban, and suburban) eligibility rates were deemed reliable only when the 95 percent confidence level permitted the estimate to be precise within three percentage points. UC and CPEC independently calculate eligibility rates and the computer programs used at the two locations have different rounding mechanisms. As a result, the eligibility rates reported in this document may vary from those recorded in the CPEC report by close to one tenth of a percentage point.

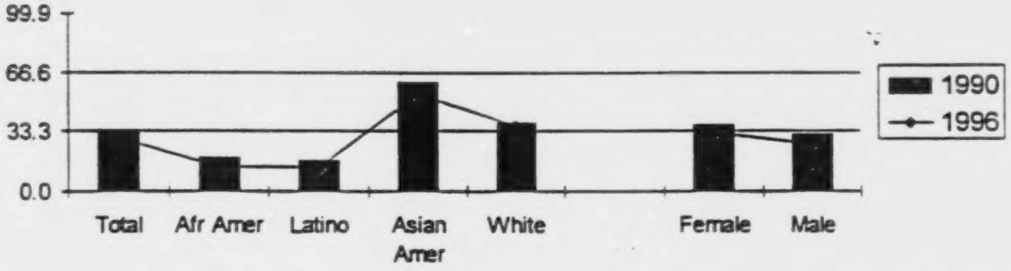
DISPLAY 1

1990 and 1996 UC Eligibility Rates



DISPLAY 2

1990 and 1996 CSU Eligibility Rates



	UC		CSU	
	1990	***1996***	***1990***	***1996***
Total	12.3	11.1	34.6	29.6
African American	5.1	2.8	18.6	13.2
Latino	3.9	3.8	17.3	13.4
Asian American	32.2	30	61.5	54.4
White	12.7	12.7	38.2	36.3
Female	13.3	12.6	37.6	32.9
Male	11.6	9.7	32.4	26.3

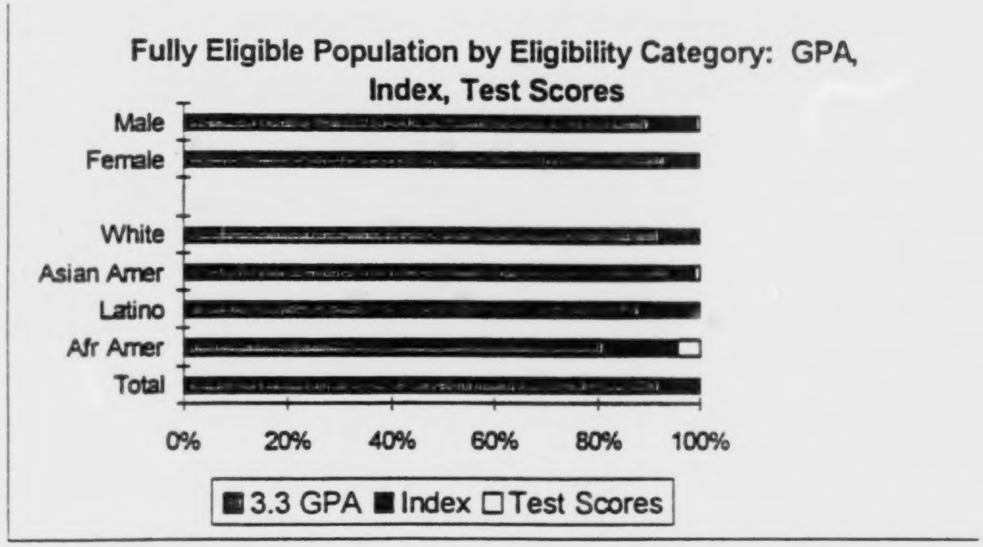
While the overall University eligibility estimate fell from 12.3 percent in 1990 to 11.1 percent in 1996, ethnic and gender rates evolved in varying patterns. The patterns of eligibility rates for white and

Asian American graduates are fairly consistent with those of the past. The eligibility rate for white graduates remained constant at 12.7 percent, above the statewide eligibility rate. Although somewhat lower than it was in 1990, the Asian American rate of 30.0 percent, is nearly triple the statewide rate. The sharpest decrease in eligibility occurred for African Americans – slipping back near the rate of ten years ago, this group's estimate is 2.8 percent, 45 percent lower than the 1990 estimate. The 1996 Latino eligibility estimate was consistent with 1990, changing from 3.9 percent to 3.8 percent; not a statistically significant change. These data reveal that the University has lost momentum toward inclusion of African American and Latino high school graduates. The gap between male and female eligibility rates widened such that the 1.7 percentage point differential of 1990 grew to a 2.9 percentage point differential in 1996, with females surpassing the statewide eligibility rate during both years.

To repeat a caution stated above, the differences between eligibility rates of various years should be viewed in the context of the upper and lower bounds surrounding each statistical estimate. For example, while there is a 45 percent difference between 5.1 percent and 2.8 percent, the precision levels for 1990 and 1996 African American rates were 1.69 and 1.14, respectively. Given this information, it is possible that the *actual* eligibility rates for 1990 was between 3.41and 6.79 percent and the probable range for the 1996 rate was 1.66 to 3.94 percent

Over ninety percent of the public high school graduates who were fully eligible obtained an a-f grade-point average (GPA) of 3.3 or greater. The remaining fully eligible students were deemed so based on an index combination of GPA and SAT-I or ACT test score. Had the index criteria not been a component of the eligibility policy, the statewide eligibility rate would have been lower by 8 percent, yielding an overall eligibility rate of approximately 10 percent. The greatest impact of the index criteria is on African American and Latino rates – index eligibility contributes 15 percent and 12 percent to these respective subgroup rates. A negligible proportion of students (0.4 percent overall) are eligible by test scores alone. Students are classified under this last category only if they are *not* eligible by GPA or index criteria. (Display 3.)

DISPLAY 3

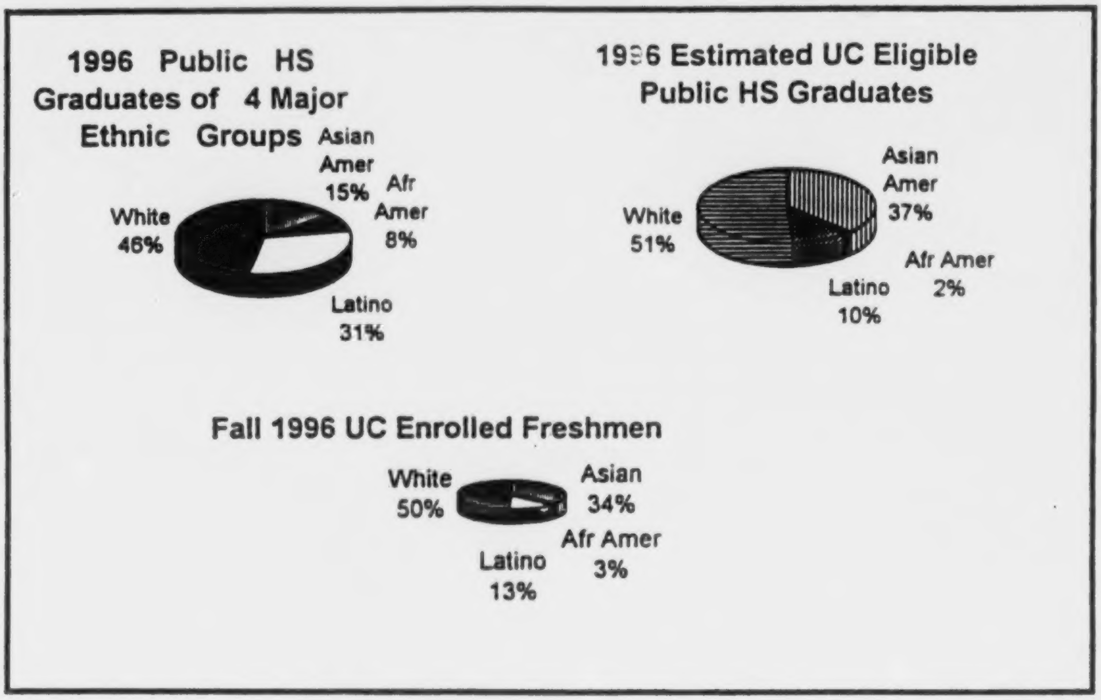


It should be noted that just over half of the UC applicants who fall in the index eligibility category have grade-point averages near the top (3.19 to 3.29 GPA band) of the index range. For these students, a modest total SAT I score (or equivalent ACT score) is required. As a point of reference, the minimum total SAT I required was 490 (570 recentered) for a student with a 3.29 GPA and the student with a 3.19 GPA needed to present a total SAT I score of at least 730 (870 recentered). For a variety of reasons, students may not attain a GPA of 3.3 or above by the end of their high school career. Most often, a student's overall GPA suffers when performance during a particular period is atypically low. Generally speaking, the index eligibility criterion allows an alternate standard of measure to "vouch" for the capabilities of students that did not perform consistently across their four years of high school. In 1996, 5.2 percent of the University's freshman applicants were index eligible. Higher proportions of the Latino and African American applicants were index eligible – 6.2 percent and 6.8 percent, respectively. While only 4.8 percent of the admitted class was index eligible, higher percentages of Latinos (5.7 percent) and African Americans (8.5 percent) were admitted who were eligible by index criteria.

Findings from this study offer a preview of the challenges facing educators who must adapt to a rapidly growing and more diverse student class. In 1990, Latinos represented 23.3 percent of public high school graduates and by 1996 this group increased by 40.2 percent, comprising 30.3 percent of the senior class. In 1996, African American and Latino students represented 37.8 percent of graduates, compared to 30.7 percent in 1990. By the year 2006, CPEC projects that these two student groups with traditionally low eligibility rates will comprise 45.1% of the public high school graduating class.

To visualize the ramifications of disparate eligibility rates, the following pie charts offer comparisons of the ethnic makeup of three distinct populations related to 1996 graduates of California public high schools: all graduates; eligible graduates; and UC enrolled freshmen regularly admitted from the 1996 public high school class. Each of the graphs shows only the four major ethnic groups for which eligibility rates have been calculated. There are striking contrasts – most noticeable is the degree to which Asian Americans comprise the eligible population relative to their representation in the graduating class. The University's enrollment figures directly reflect this group's high concentration in the eligible pool. Conversely, African American and Latino students are dramatically underrepresented in the eligible population, yet, the University achieves great success in enrolling a substantial proportion of these eligible students. While the overall enrollment rate of the estimated eligible pool is 65%, the University enrolls approximately 78 percent and 98 percent of the estimated numbers of eligible Latino and African American graduates. High school graduates who participated in a University outreach program typically comprise approximately one-fourth of each fall's African American and Latino enrollments. Statewide eligibility estimates do *not* reflect the results of special outreach efforts which are confined to less than 5 percent of graduates who meet the racial/ethnic and socioeconomic profile that these programs have been designed to serve. In other words, the eligibility study sampling design offers reliable estimates of the State's eligibility rates, however, the success of small program efforts are statistically incapable of shifting these overall rates. (Display 4)

DISPLAY 4



1996 Public HS Graduates of 4 Major Ethnic Groups

1996 Estimated UC Eligible Public HS Graduates

Fall 1996 UC Enrolled Freshmen

Potentially Eligible and Ineligible Graduates of 1996

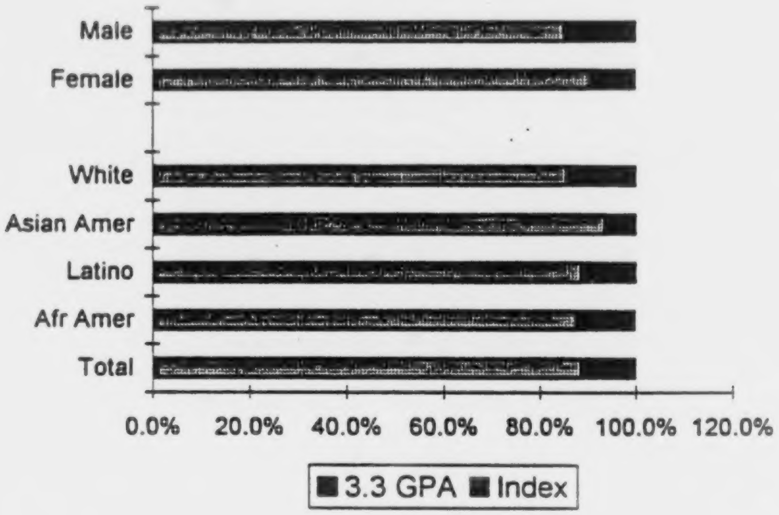
Compared to the fully eligible population, another group of graduates is identified as potentially eligible because they have achieved the requisite scholarship and subject standards while they have not taken the full battery of required standardized tests. Potentially eligible students represented 9.5 percent of the 1996 graduating class, up form 6.5 percent in 1990 and an even greater gain over the 5.0 percent 1986 rate. The growth in the potentially eligible population is partly related to a shrinking population of the ineligible students – from 1990 to 1996 there was a 1.7 percentage point drop in the overall UC ineligible group. This phenomenon was most notable for Asian American and white graduates. Across all ethnic groups the trend since 1983 shows that among the ineligible group, increasing proportions are only marginally ineligible, simply lacking one or a few required courses. The CPEC report refers to this as the "domino effect" – more students are participating in higher level courses, yielding a larger population of students who appear potentially eligible and even greater growth in the ineligible subgroup that is close to the eligibility border. (Display 5)

The potentially eligible African American population stands out as unique from the others in that it increased by approximately the same proportion that the fully eligible population decreased. In other words, had more African American students taken all of the required tests, the eligibility rate may not have dropped. Similarly, the Latino eligibility estimate could have been higher by as much as 4 percentage points had students simply taken the standardized tests.

As was the case for the fully eligible population, the vast majority of the potentially eligible students, 88.5 percent, have met the 3.3 GPA cutoff. The University is continually challenged to inform all students that a battery of tests must be taken in order for candidates to be considered for admission at UC. At this time we can only speculate that some potentially eligible students either were not fully aware of the University's test requirement or had made other college plans. Perhaps they are bound for CSU, a community college, or an alternate institution that does not share the University's test requirement. It is clear that, under current criteria, had all individuals classified as potentially eligible taken the full set of required tests, the UC eligibility rate would have soared to 20.6 – well above the Master Plan guideline and prompting enrollment demand that outstrips the University 's current capacity.

DISPLAY 5

Potentially Eligible Population: By GPA or Index Criteria



When combined, the fully and potentially eligible populations represent those who complete minimum Universitywide subject and scholarship requirements – 20.6 percent of the 1996 graduates successfully completed the University's minimum course requirements with a grade of 'C' or higher. This is an improvement over the 1990 graduating class rate of 19.0 percent and it shows great progress in comparison to the 14.1 percent for the class of 1986. Prior to 1990, UC admitted from both the fully and potentially eligible groups. Admissions officers would frequently wait for students to submit test scores not presented when they initially applied. However, by 1990, space was at a premium at many of the University's campuses and regular admission was, by in large, granted only those who were fully eligible at the time they applied. It remains true today, with application volume at a record high, that only fully eligible students are offered admission under regular admissions criteria.

Fluctuations in Eligibility Rates

Increases in subject matter preparation can be attributed to at least three major factors that have worked in tandem statewide:

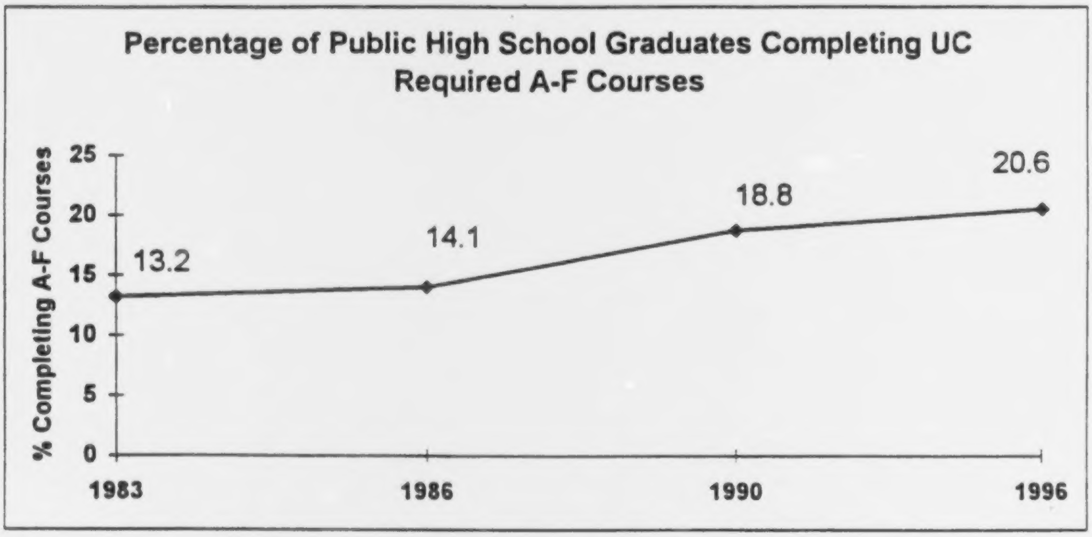
1. CSU's adoption in 1984 of a comprehensive pattern of college preparatory courses as a requirement for freshman admission. These requirements, phased in between 1984 and 1992, mirror those of the University and have resulted in increased enrollment in college preparatory

courses by high school students interested in attending CSU. Twenty two percent of the 1996 graduates were eligible to CSU based on the University of California a-f course pattern.

2. the State's educational reform movement (as reflected in Senate Bill 813 in 1983) and the accompanying high school graduation standards, which also parallel the University's required courses.
3. the success of UC efforts to inform high school students of the University's eligibility requirements.

In examining the course taking patterns of students, the CPEC study highlights the dramatic growth in the proportion of graduates who have completed the University's course requirements. The following graph shows the trend for a-f course completion rates for the CPEC studies of graduates of 1983, 1986, 1990, and 1996. From 1983 to 1996 the rate increased by 56 percent. (Display 6)

DISPLAY 6



Why Have Eligibility Rates Decreased and Why are Students Ineligible?

What explains the currently observed decline in the University's eligibility rate? The overall improvement in course preparation was not accompanied by test-taking behavior that would have increased University eligibility, particularly among Latino and African American students. Graduates of white and Asian American background are far more well prepared than the average, both in terms of courses completed and exams taken.

CPEC Eligibility Study data include detailed information about the courses students do and do not take. Ineligibility is a function of inadequate subject preparation (completion of the University's core set of required a-f courses) and/or scholarship performance (grades or a combination of grades and test scores). By virtue of the Master Plan for Higher Education, the vast majority of high school graduates, is expected to be ineligible for the University. Overall and across all gender, ethnic, and regional subgroups, the majority of ineligible graduates have neglected to successfully complete (with a grade of 'C' or better) at least one year's worth of University preparatory courses. Further analysis of this large student population may offer valuable insights about the impediments toward a college preparatory course pattern. In the meantime, it is worth noting that past investigations, at the statewide and national levels, have pointed to insufficient preparation in mathematics, English/writing, and laboratory science.

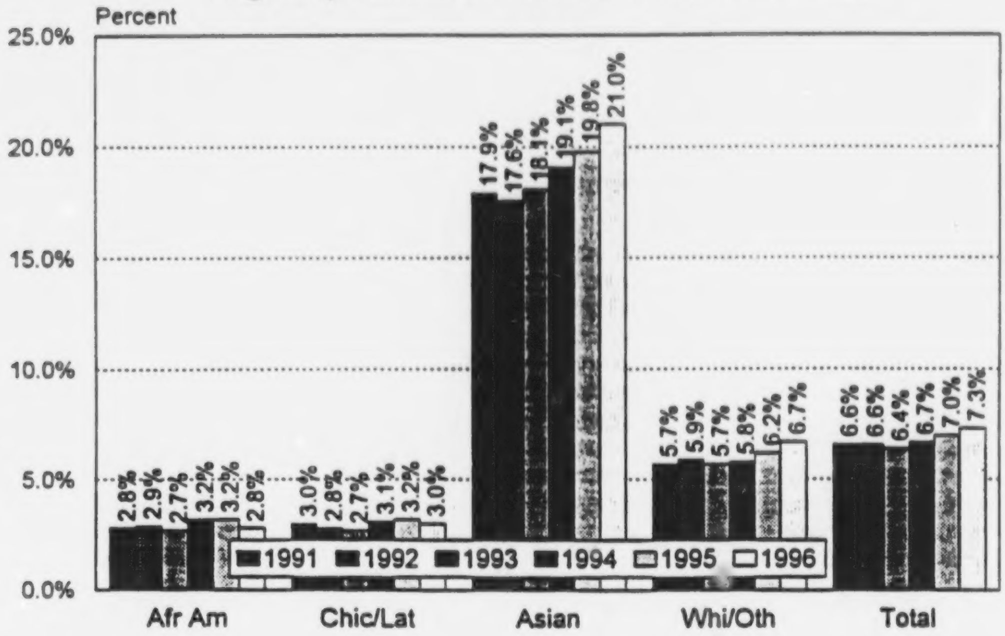
Roughly 80 percent of the 1996 graduates are UC ineligible. Low test scores rarely are the only reason for a student's ineligibility – about 3 percent of ineligible students were deemed so because of an inadequate combination of grades and test scores. Approximately 62.6 percent of graduates are far from completion of the college preparatory course pattern. Of the ineligible population, close to 17 percent simply lack a few required courses. Gender and racial/ethnic group findings regarding ineligible students were consistent with those of the overall population.

Enrollment of Fall 1996 Regularly Admitted Freshmen

Irrespective of fluctuations in the UC eligibility pool, overall application and enrollment rates of California public high school graduates remained fairly constant between 1986 and 1996. The percentage of public high school graduates who applied to UC was recorded at about 13 percent during this ten-year period. During this same period, the proportion of enrolled students, admitted by regular admissions criteria, ranged from 6 percent to 7 percent of the public high school graduates. Enrollment rates for freshmen of the four major ethnic categories, for the fall of 1991 through 1996, are shown in Display 7. Relative to the eligibility rates presented in this report, these enrollment data reveal that the University is quite successful at enrolling a substantial portion of the college ready African American and Latino graduates. The enrollment rates of Asian Americans and students categorized in the white/other category have increased significantly since 1991. There are fluctuations in African American and Latino enrollment rates, and most notable is the decline seen from 1995 to 1996. This decline mirrors the decline in a-f completion rates reported by the California Department of Education (CDE) for these groups between 1995 and 1996. CDE reported that 22.5 percent of Latino graduates in 1995 and 22.3 percent in 1996 completed the a-f pattern. A bigger drop in a-f completion was reported for African Americans (28.9 percent in 1995 down to 27.9 percent in 1996), while the percentages for white graduates increased (38.7 percent in 1995 up to 39.7 percent in 1996) and the percentages for Asian American graduates also increased (51.3 percent in 1995 up to 53.6 percent in 1996).

DISPLAY 7

Percentage of California Public High School Graduates who Enrolled as Regularly Admitted Freshmen: Fall 1991 - 1996



Factors effecting students' academic preparation and enrollment choices extend beyond the confines of a study of high school graduates' transcripts. For instance, some of the most well qualified graduates in California are classified as potentially eligible simply because they do not choose to or need to take the SAT II tests to be considered for admission at a competitive institution. The vast literature about circumstances and experiences that govern student behavior conclude that the steadiness of enrollment rates is a function of social, cultural, and environmental factors, such as the quality of prior educational experience, the economy, counseling and guidance, and peer group influences. Follow-up studies, in the form of student surveys and an assessment of the linkages between the high school and University environments, are needed to ascertain why academically qualified students do not take the complete set of required tests.

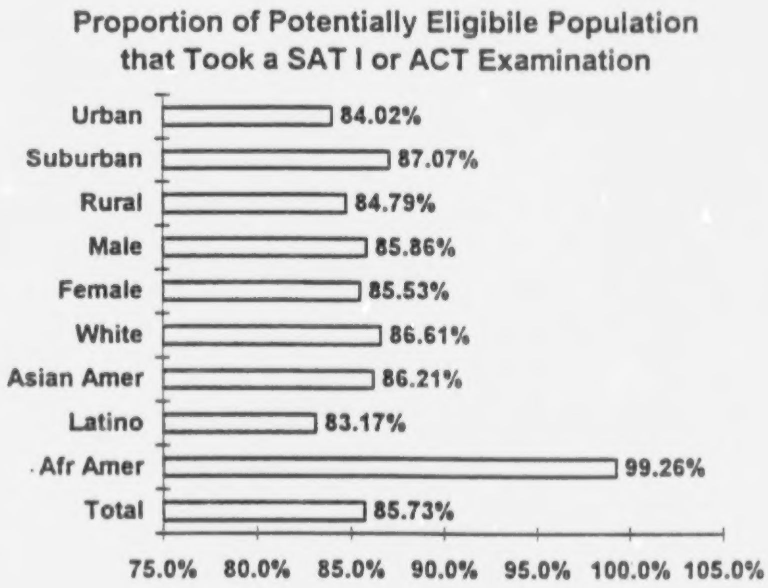
ELIGIBILITY RATES AND THE ROLE OF STANDARDIZED TESTS

Data from the College Board and ACT indicate greater overall participation in standardized tests, including the SAT I, SAT II subject tests, the ACT, and Advanced Placement examinations. Still, there is a huge disparity between the overall population and underrepresented students' eligibility rates under current criteria for regular admission determining eligibility. The public and University communities have mixed reactions to recent proposals to eliminate use of standardized tests in defining eligibility. Chief proponents of these proposals state that test requirements represent an unfair barrier between the University and students who come from communities that traditionally have low eligibility rates. This report section explains the degree to which overall and subgroup eligibility rates defined by gender, racial/ethnic, and school location fluctuate when test scores are not considered in the definition of UC eligibility.

Which Standardized Tests are Taken by Potentially Eligible Graduates?

Potentially eligible students generally take either the SAT I or ACT examination – of the overall population, 85.7 percent have done so. As seen in Display 8, below, varying proportions of graduates of the different subgroups complete this criteria. The great majority of potentially eligible students (92 percent) have a GPA of at least 3.3 and this also is true of the subgroup who take either the ACT or SAT I. Just over 87 percent of potentially eligible students have taken the SAT I or ACT and also have a GPA of 3.3 or greater. This finding is fairly consistent across ethnic groups, with somewhat higher proportions of the Latino (88.7 percent) and Asian American (92.4 percent) subgroups having achieved the 3.3 GPA cutoff and taken a SAT I or ACT exam.

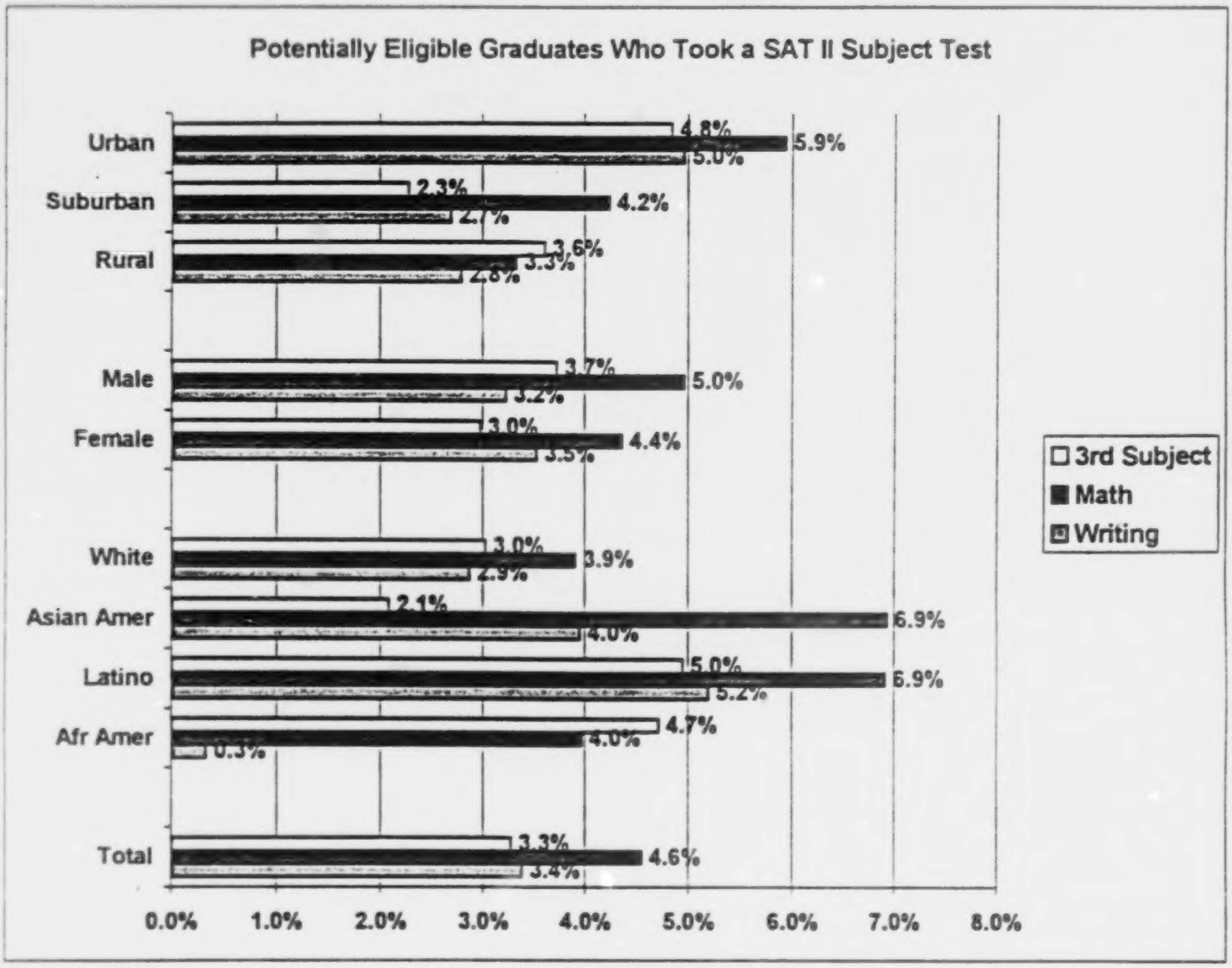
DISPLAY 8


Proportion of Potentially Eligibile Population that Took a SAT I or ACT Examination

Few potentially eligible students took one or two of the required SAT II subject tests. Of those who did take at least one subject test, nearly all had taken a SAT I or ACT examination – 96.9 percent of the students who had a Writing SAT II score also had a SAT I or ACT score and 97.7 percent of the students who had a Math SAT II score took either the SAT I or ACT exam. Furthermore, most students who had a SAT II score of any type were members of the potentially eligible pool who had a 3.3 or higher GPA. For instance, 86.0 percent of the students who had a Math SAT II test score met the 3.3 GPA cutoff. Similarly, 90.6 percent of those with a SAT Writing score were potentially eligible with a 3.3 GPA or higher.

Display 9 contains a detailed summary of the percentages within each group that participated in one of the three subject tests. The greatest proportion of potentially eligible students with a SAT II exam was 6.9 percent, pertaining to both the Asian American and Latino subgroups taking the Math subject test. Overall, 3.4 percent took the Writing test, 4.6 percent took the Math test, and 3.3 percent had a third subject test score. With respect to the Math and third subject tests, it is *interesting to note that the proportions of African American and Latino graduates surpassed the* overall average taking these individual tests. The proportion of white students taking each of these tests was consistently below the overall average for potentially eligible students. Asian American students were proportionately above the average for all but the third subject test. These data should be viewed with caution because the sample size, particularly within racial/ethnic groupings, is small and the margin of error is unknown. The reader is advised to consider these data indicative of actual population characteristics, however, the statistics should be regarded as rough estimates.

DISPLAY 9

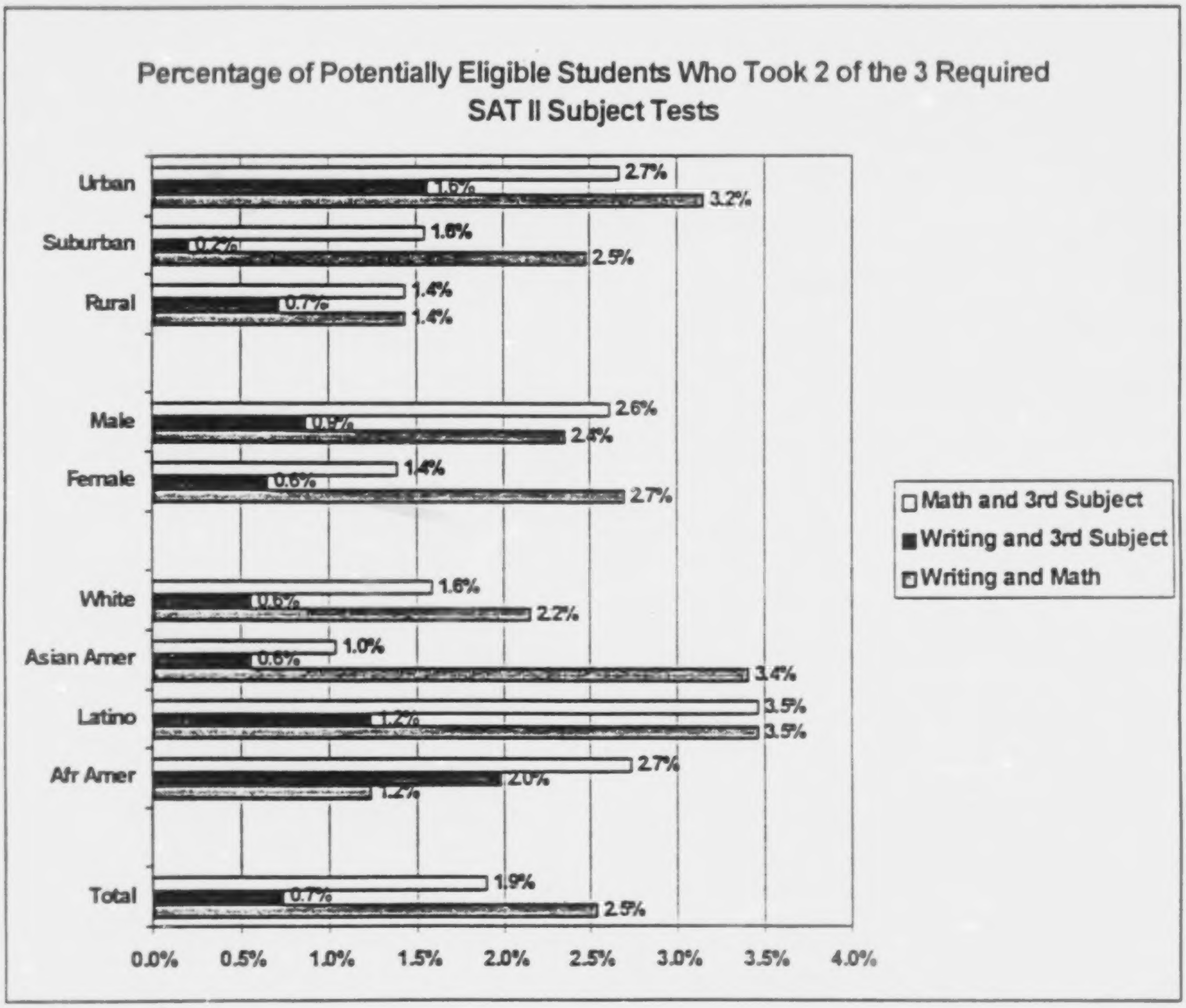


Males in the potentially eligible population were somewhat more likely than females to have a Math subject test score on record – 5.0 percent versus 4.4 percent, respectively. This was also true for the third subject test – 3.0 percent of females, compared to 3.7 percent of males had a third subject test score.

Relative to graduates from rural and suburban schools, proportionately more potentially eligible graduates of urban schools took one of the SAT II three subject tests. Suburban high school graduates were the least likely to have a third subject test score, however, they were more likely than rural school graduates to have taken the Math test.

As depicted in Display 10, small proportions of potentially eligible students took up to two SAT II subject tests. Overall, 2.5 percent had taken the Writing and Math exams; 0.7 percent had taken the Writing and third subject tests, and 1.9 percent had scores for the Math and third subject tests. Once again, the sample sizes are small and it would be improper to consider these statistics more than rough approximations of the actual population. It appears that African American, Latino, male, and urban school graduates are somewhat more likely than average to take both the Math and third subject exams. Across the board, no more than 2.0 percent of students had taken both the Writing and third subject examinations and no more than 3.5 percent had scores for the Writing and third subject tests.

DISPLAY 10

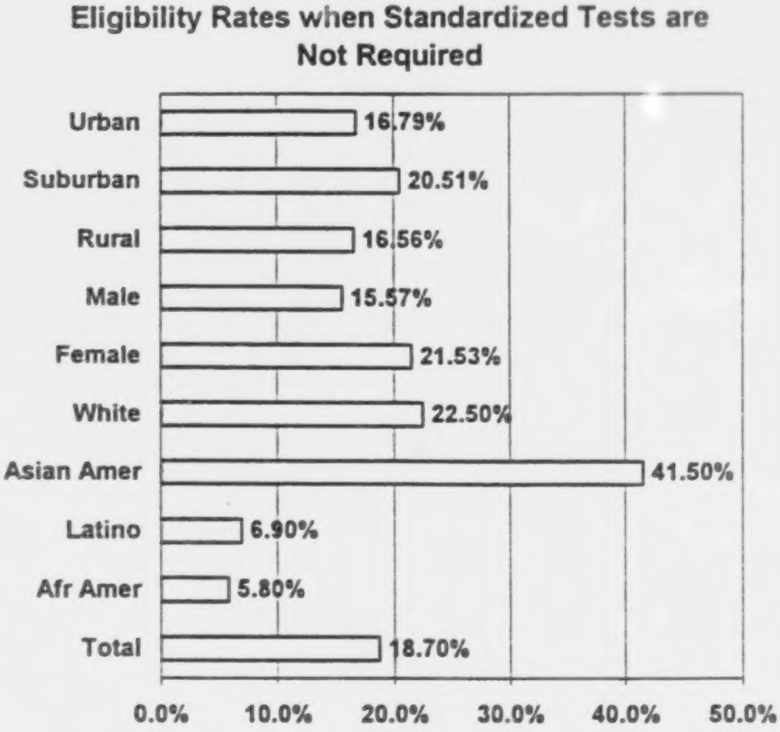


Percentage of Potentially Eligible Students Who Took 2 of the 3 Required SAT II Subject Tests

ELIGIBILITY RATES WHEN STANDARDIZED TESTS ARE NOT CONSIDERED

If the University were to maintain its GPA cutoff at 3.3 and completely eliminate the role of tests in the eligibility determination, a number of students would become eligible while others would become ineligible. More specifically, students who met the index criteria would become ineligible and potentially eligible students who had the 3.3 GPA minimum would be deemed eligible. The results of this simulated eligibility scenario are shown in Display 11.

DISPLAY 11



The following table shows the simulated distribution of students coming from the populations formerly referred to as fully or potentially eligible. Overall and for Asian American and white graduates, the fully eligible make up the majority that are eligible when tests are not considered in the determination of eligibility. A somewhat higher proportion of Latinos and a substantially larger proportion of African Americans from the potentially eligible pool contribute to their eligibility rates under this scenario. The same phenomenon occurs for rural school graduates.

Percentage of Fully or Potentially Eligible Graduates with A-f GPA of 3.3 or Higher

ELIGIBILITY RATES BASED ON -	Total	African Amer	Latino	Asian Amer	White	Female	Male	Rural	Suburban	Urban
GRADE-POINT AVERAGE ALONE:										
Fully Eligible: GPA of 3.3 or greater	10.30%	2.30%	3.30%	28.00%	11.70%	11.77%	8.71%	6.58%	12.08%	9.33%
Potentially Eligible: GPA of 3.3 or greater	8.40%	3.50%	3.60%	13.50%	10.80%	9.76%	6.86%	9.98%	8.43%	7.46%
SIMULATED ELIGIBILITY RATE	18.70%	5.80%	6.90%	41.50%	22.50%	21.53%	15.57%	16.56%	20.51%	16.79%

This simulation yields higher eligibility rates for all groups under study and an overall eligibility rate that exceeds the 12.5 percent Master Plan guideline. In addition to the fact that formerly index-eligible students have been excluded from the eligible pool, several important concerns emerge from this analysis. The presumption is that the University can structure its eligibility criteria to be based strictly on grade-point average, a measure which has known biases resulting from variations in school course curriculum and grading practices. Grade-point average as the sole determinant of eligibility becomes an acute problem, not only in terms of an overall eligibility assessment, but in terms of the means by which selective campuses, such as Berkeley and Los Angeles, can distinguish academic profiles among the mass of applicants who present GPAs between 4.0 and 5.0. The Academic Senate and associated campus officials would likely need to identify a replacement for the quality of information standardized test scores provide, unless it is made clear to prospective students that for admission at selective campuses/majors, certain test scores will need to be presented.

Another key concern is that simulation after simulation reveals that mechanisms for augmenting the eligibility rates of underrepresented minority groups will simultaneously raise the overall University eligibility rate. This simulation shows that 18.7 percent of the 1996 public high school graduates would have been eligible to attend UC. That rate is out of compliance with the Master Plan guideline by roughly 50 percent (18.7 is 49.6 percent greater than 12.5) and, at the same time, the eligibility rates of underrepresented groups do not increase appreciably.

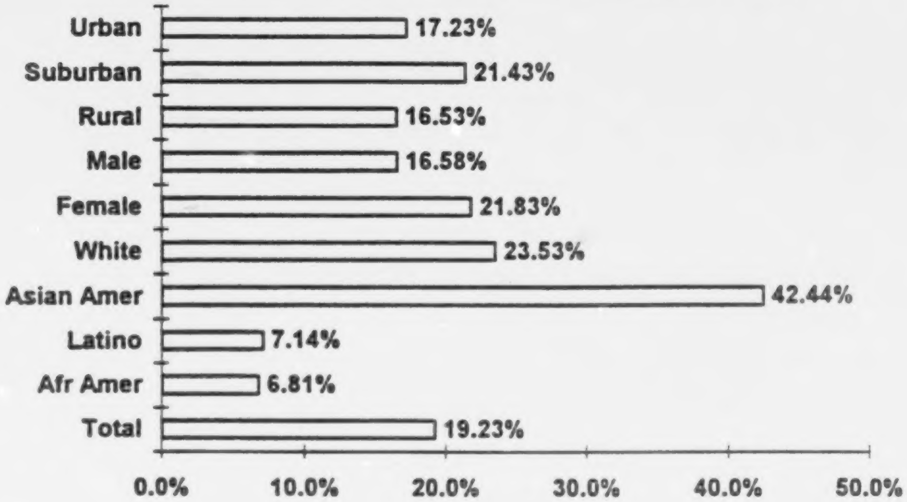
ELIGIBILITY RATES WHEN ONLY THE SAT I/ACT IS REQUIRED

If the University were to maintain its 3.3 GPA cutoff and also allow for the 2.82-3.29 index component, an option would be to restrict the test score requirement to only the SAT I/ACT component. Under this scenario, eligibility would not be contingent upon students taking the SAT II subject tests. By this criteria, 85.7 percent of the potentially eligible group would be redefined as eligible. As discussed above, a substantial proportion of African Americans (99.5 percent), whites (86.5 percent), Asian Americans (86.2 percent), and Latinos (83.2 percent) from the potentially eligible pool have at least taken the SAT I and/or ACT examination. Nearly identical proportions of males and females of the potentially eligible population have at least an SAT I or ACT score on record -- 85.9 percent and 85.5 percent, respectively. Similar SAT I/ACT test-taking behaviors are seen with respect to the proportions of potentially eligible students from rural (84.7 percent), suburban (87.1 percent) and urban 84.0 percent) schools.

Given the inclusion of students who are GPA or index eligible, this scenario portrays an inflated overall eligibility rate of 19.23 percent. Display 12 presents simulated eligibility rates which range from 6.91 percent for African Americans to 42.44 percent for Asian Americans when courses, GPA and *only* a SAT I or ACT test score are required.

DISPLAY 12

Simulated Eligibility Rates when Only the SAT I or ACT is Required of GPA or Index Eligible Graduates



The combination of fully and potentially eligible students, as previously defined, can be seen in the resulting simulation. With the exception of rural school graduates, the majority of students come from the fully eligible pool. Proportionally, the greatest eligibility rate gain under this scenario is for African Americans (6.81 percent is over 140 percent higher than the current rate of 2.8 percent), followed by a rural eligibility rate increase of 133 percent. The remaining subgroups' eligibility rates grow by between 65 and 88 percent. The table below shows the relative contributions of the fully and potentially eligible populations under this scenario:

Eligibility Rates When Only the SAT I/ACT is Required of GPA or Index Eligible Graduates: Percentage from the Fully and Potentially Eligible Populations

	Total	Afr Amer	Latino	Asian Amer	White	Female	Male	Rural	Suburban	Urban
Fully Eligible	11.12%	2.81%	3.78%	30.00%	12.66%	12.61%	9.66%	7.11%	13.01%	10.29%
Potentially Eligible	8.11%	4.00%	3.36%	12.44%	10.87%	9.22%	6.92%	9.42%	8.42%	6.94%
TOTAL (SIMULATED) ELIGIBILITY RATE	19.23%	6.81%	7.14%	42.44%	23.53%	21.83%	16.58%	16.53%	21.43%	17.23%

Background for the Discussion about Revised Eligibility Criteria

Results of the two simulations thus far presented indicate that elimination or minimization of the role of tests in determining eligibility yield an overall eligibility rate that greatly exceeds 12.5 percent. The remainder of this report provides a few examples of alternative eligibility criteria that target approximately 12.5 percent of the 1996 graduating class represented in the CPEC Eligibility Study database. These alternatives are presented in order to illustrate the complexity and limitations of an attempt to balance diversity and academic performance measures in the context of a zero sum game – when the overall rate is capped at approximately 12.5 percent. No policy recommendations are intended by this report. This report is provided as background information to aid preliminary discussions about the relevance and feasibility of revised eligibility criteria.

RECONSIDERING ELIGIBILITY – WITHIN THE 12.5 PERCENT MASTER PLAN GUIDELINE

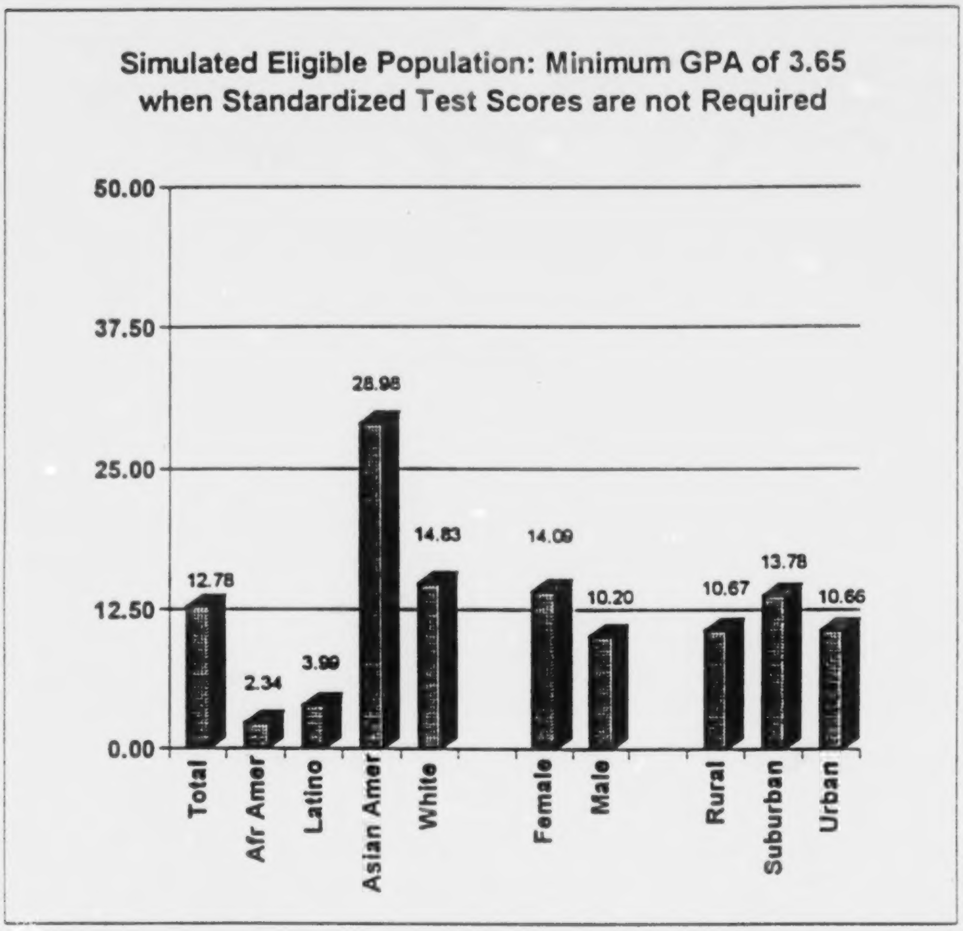
Numerous strategies can be devised to reconfigure eligibility such that it conforms to the 12.5 percent guideline. A dominant theme appearing in recent proposals (most prominently in SCA 7) is one of "automatic" eligibility to those in the top of their graduating class. The language of SCA 7 entails discontinued use of standardized test scores, such as the ACT, SAT I or SAT II. Implicit in the draft legislation is the idea that students can be ranked within school by GPA (presumably by an A-F GPA). To date, the authors of SCA 7 have not presented any analyses of the likely effects of the proposed legislation – principally because relevant data are scarcely available. Simulations performed by the University have been conducted with the best available statewide information files and they have been limited primarily to the SAT-taking population. These simulations conclude that SCA 7 may have the potential to increase diversity (both socioeconomic and racial/ethnic diversity) within the entering UC freshman class. However, the simulations also show that GPA and test scores for the incoming class are lowered.

CPEC Eligibility Study data cannot address questions related to school-level academic measures or eligibility rates within schools. Too few Eligibility Study records were sampled from each school to attain a measure of a given school's outcomes. The sample is composed of individual student records that offer reliable information about the State as a whole and large regions within the State. Alternative definitions of eligibility can be viewed, or simulated, allowing us to know effects on the statewide or regional eligibility rates.

Eligibility Defined by Grade-Point Average Alone

Just as we were able to simulate eligibility rates when test scores were not required, we can simulate eligibility rates when eligibility is strictly defined by a minimum GPA that is calibrated to yield the top 12.5 percent of the graduating class. The 1996 CPEC Eligibility sample data were manipulated for this purpose and it was found that a GPA minimum of 3.66 would yield an eligibility rate of 12.51 percent. The more convenient figure of 3.65 is used to describe the makeup of the simulated eligible pool. As would be expected, all fully and potentially eligible students who had formerly been classified as index eligible were classified as ineligible due to an insufficient GPA. Fully eligible students who had a GPA between 3.3 and 3.649 also were classified as ineligible. Display 13, shown on the following page, depicts the estimated eligibility rates derived from a 3.65 GPA cutoff with no test requirement.

DISPLAY 13


Simulated Eligible Population: Minimum GPA of 3.65 when Standardized Test Scores are not Required

By raising the GPA requirement and eliminating the test component, the combined portions of the groups formerly labeled fully and potentially eligible offers a different mixture of students. It appears that many highly qualified potentially eligible students (who may be preparing for institutions that do not require applicants to take the full battery of UC-required admissions examinations) add to the eligibility rates of a few subgroups. For instance, eligibility rates of white graduates increased by 17 percent (from 12.7 to 14.8) and the Latino eligibility rate increased by 5 percent (from 3.8 to 4.0). Conversely, proportionately fewer African American graduates within the fully and potentially eligible groups had achieved a 3.65 or greater GPA. The African American eligibility rate was lowered from 2.8 percent to 2.3 percent, representing an 18 percent decline. Also striking was the negligible shift in the Asian American eligibility rate which fell by approximately one percent, from 30.0 percent down to 28.98 percent. Females showed a considerable gain – a 12 percent increase in the proportion eligible (from 12.6 to 14.1) under this simulation. The simulated rate for males increased by 5 percent (from 9.7 to 10.2).

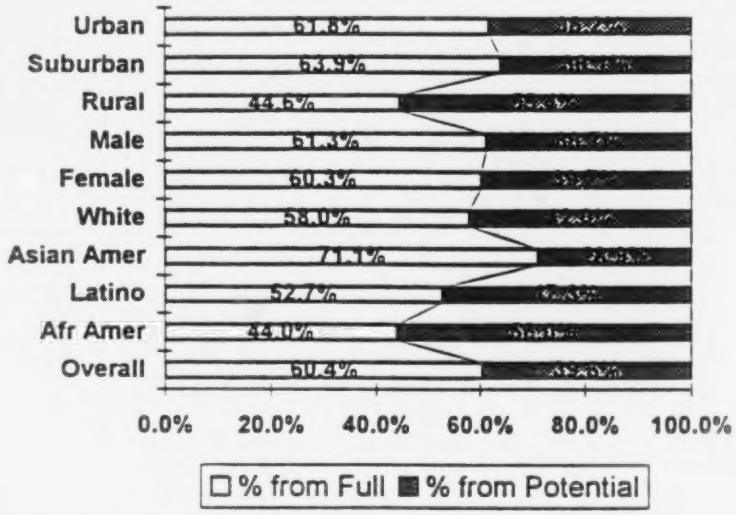
This scenario appears to reduce the gap between eligibility rates of the three types of schools across the State. The eligibility rate of rural schools receives the greatest boost, increasing from 7.1 percent to 10.7percent. Negligible improvement in the rates of suburban graduates (from

13.0 percent to 13.8 percent) and urban graduates (from 10.3 percent to 10.7 percent) were shown as a result of this altered eligibility definition.

A different mix of students is derived, as seen in Display 14. Overall, approximately 60 percent of the pool defined by the 3.65 GPA cutoff comes from the fully eligible population. The proportion that the fully eligible population of each subgroup contributes to the redefined pool ranges from as high as 63.9 percent for the suburban subgroup to as low as 44.6 percent for rural graduates and 44.0 percent for African American graduates. Another way of viewing this information is to consider the flip side – roughly 40 percent of this population enters from the potentially eligible pool and these students have displaced an equivalent number who were formerly eligible, but did not meet the 3.65 minimum GPA threshold. Displacement of formerly fully eligible students is especially notable within the African American, Latino, and rural subgroups.

DISPLAY 14

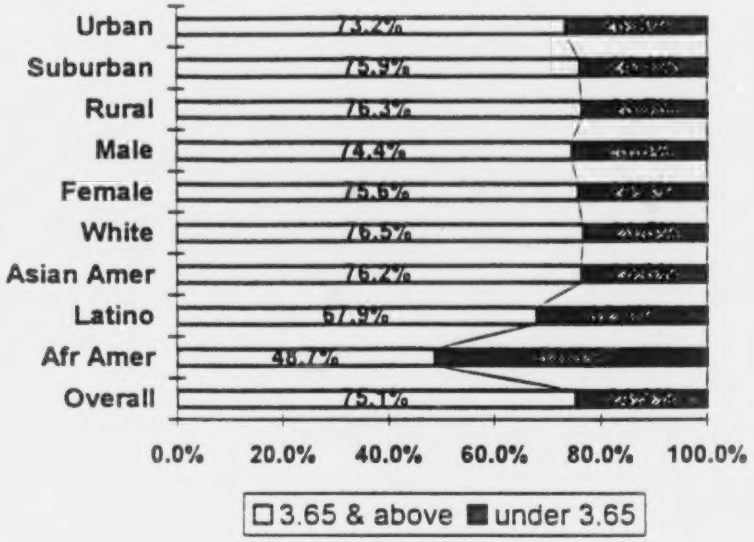
Makeup of the Population with a 3.65 GPA cutoff:
Percentage of Fully Vs Potentially Eligible Graduates



As the following two displays show, the degree to which formerly fully or potentially eligible graduates meet the 3.65 GPA cutoff varies by gender, race/ethnicity, and type of school attended. With the exception of the African American and Latino students, close to three-fourths of fully eligible graduates have at least a 3.65 GPA. In the case of the potentially eligible pool, we again see that smaller than average proportions of African Americans and Latinos are at the 3.65 or above mark. Male and urban school graduates are slightly below average in terms of the proportion achieving a 3.55 or better. (Displays 15 and 16 on next page.)

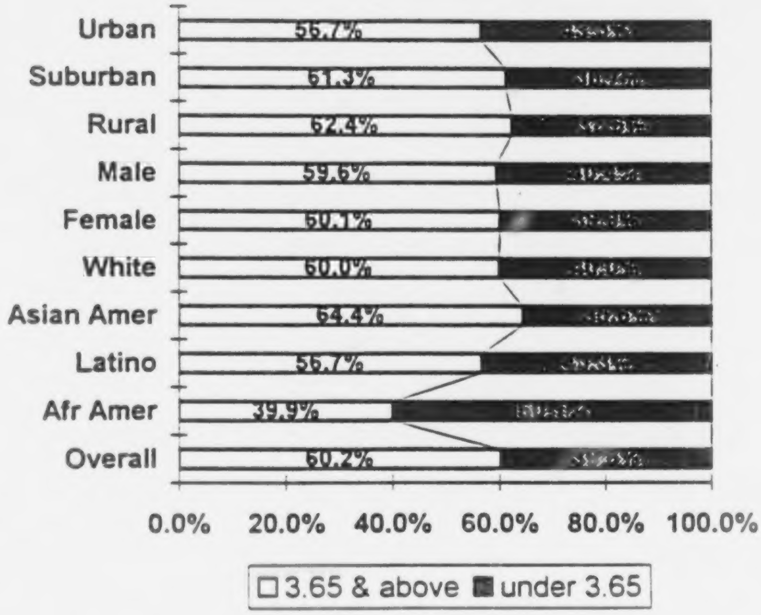
DISPLAY 15

Percentage of Fully Eligible Graduates who Achieve a GPA of 3.65 or Higher: Overall and within Subgroups



DISPLAY 16

Percentage of Potentially Eligible Graduates with a GPA of 3.65 or Higher: Overall & within Subgroups



The proportions of fully and potentially eligible students falling above or below the 3.65 grade-point average cutoff is seen in the following table (these data reflect those shown in Displays 15 and 16):

Proportion of Fully or Potentially Eligible Graduates Above or Below 3.65 GPA

	Overall	Afr Amer	Latino	Asian Amer	White	Female	Male	Rural	Suburban	Urban
Fully										
3.65 & above	75.1%	48.7%	67.9%	76.2%	76.5%	75.6%	74.4%	76.3%	75.9%	73.2%
Under 3.65	24.9%	51.3%	32.1%	23.8%	23.5%	24.4%	25.6%	23.7%	24.1%	26.8%
Potentially										
3.65 & above	60.2%	39.9%	56.7%	64.4%	60.0%	60.1%	59.6%	62.4%	61.3%	56.7%
Under 3.65	39.8%	60.1%	43.3%	35.6%	40.0%	39.9%	40.4%	37.6%	38.7%	43.3%

ELIGIBILITY RATES WHEN BOTH GRADE-POINT AVERAGE AND A SATI OR ACT EXAM SCORE ARE CONSIDERED

A combination of some fully and potentially eligible students can be classified as eligible under a number of different scenarios. The broad SAT I score scale, which ranges from as low as 400 to as high as 1600 (increasing in 10-point intervals) can be aligned with GPA values in an index defining the entire top eighth of the high school graduating class. Traditionally, the weights assigned the GPA and test score that make up an index formula are derived from validity study findings. While new validity study methodologies are currently under discussion and soon to be finalized, the results of previous validity studies inform us, very clearly, that the GPA should be given considerably more weight than a standardized test score. With this general assumption in mind, and in consideration of the fact that over 85 percent of the potentially eligible population has taken the SAT I or ACT examination, it seems wise to explore the power of an index to objectively define a diverse and well qualified eligible pool.

The following is a concrete illustration of one of many possible indices. This particular index weights the high school (a-f) grade-point average twice as much as the SAT I or ACT score. The actual formula reads:

{(A-f GPA * 600) + (SAT I – or ACT equivalent– * .3)} = 2490

The formula establishes a linear relationship between the GPA and test score such that the higher one element, the lower the required minimum of the other element. One consequence of this weighting scheme and associated test score/grade point settings is that students with GPAs at the higher end of the scale, 3.95 and above, need only take the SAT I or ACT in order to achieve the 2490 index outcome. Another consequence associated with this scenario is that the lowest possible GPA that can meet the 2490 index floor is a GPA of 3.35. Using this index formula, a student would be considered eligible if s/he achieved a score of 2490 or higher. While this particular index design may not reflect a viable policy, it serves the purpose of depicting the inner workings of an index approach.

Display 17, below, charts many of the grade point average values between a GPA of 3.35 and 5.0 alongside their associated SAT I scores between 400 and 1600 that follow from the simulated index formula. Also shown are the GPA values that no longer would qualify for eligibility.

DISPLAY 17

A-f GPA	* 600	+ SAT I	* .3	=2490
3.95	2370	400	120	2490
3.90	2340	500	150	2490
385	2310	600	180	2490
380	2280	700	210	2490
375	2250	800	240	2490
3.70	2220	900	270	2490
365	2190	1000	300	2490
360	2160	1100	330	2490
355	2130	1200	360	2490
350	2100	1300	390	2490
345	2070	1400	420	2490
340	2040	1500	450	2490
335	2010	1600	480	2490

SAT I score value is of no consequence for GPA of 3.95 or higher

At 3.65 GPA the SAT I requirement is set at the average (Recentering defines 1000 as the SAT I total average)

3.34 \
333 \ FORMERLY
332 | GPA (*No longer considered eligible*)
331 / ELIGIBLE
3.30 /

329 \ FORMERLY
through | INDEX (*No longer considered eligible*)
282 / ELIGIBLE

When implemented, this index formula produces an overall eligibility estimate of 12.61 percent. Display 18, on the following page, portrays the resulting eligibility rates for subgroups, ranging from 2.57 percent for African Americans to 29.41 percent for Asian Americans. The relative rankings of these eligibility estimates mirror those seen under current eligibility criteria. Diminishment of the African American eligibility estimate is a result of the higher grade-point average cutoff, combined with the establishment of minimum SAT I scores for GPA values that currently are not subjected to an index computation. Under this scenario, the Latino eligibility rate hovers at the currently defined level and this is also true for Asian American high school graduates. Graduates of white background show a higher eligibility rate, as do graduates within each of the three types of schools. The rural school eligibility estimate increases most dramatically, from 7.1 percent to 10.8 percent.

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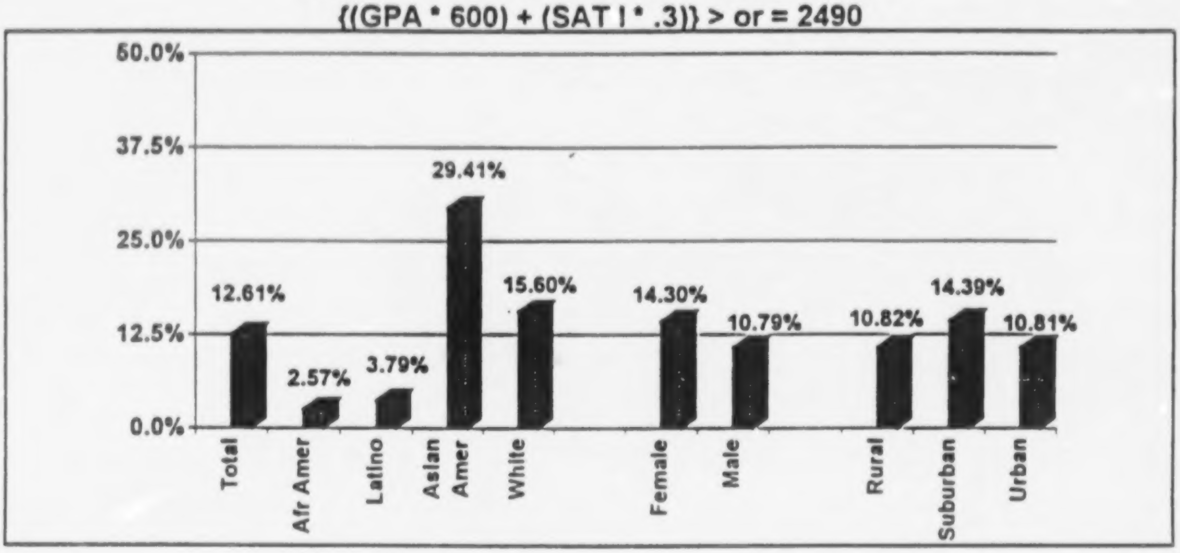
DISPLAY 18

Simulated Eligible Population: Minimum GPA of 3.35 with SAT I/ACT Score Used in an Index Computation {(GPA * 600) + (SAT I * .3)} > or = 2490



PROGRESSIVE INQUIRY

Should BOARS consider eligibility defined by grade-point average alone or some combination of academic performance indicators, further analyses are warranted. Specifically, it would be important to identify how the redefined population compares to the current population in terms of academic measures, such as GPA, test scores (to the extent available), and quality of a-f courses completed. In addition, it would behoove the University to gather information regarding the proclivity of formerly potentially eligible students to apply and attend the institution, if revised eligibility requirements were to include them in the fully eligible pool.

University of California course requirements significantly influence high school curricula and graduation requirements, impacting the educational opportunities of all students, not just those in the top 12.5 percent. Eligibility requirements articulate what it means to be able to begin college immediately after graduation from high school and Californians have come to expect that all high school graduates who meet UC eligibility criteria are entitled to an admissions offer in response to their application. Validity studies are conducted periodically to ascertain how well the components of UC eligibility requirements predict the likelihood of success at UC. Past validity studies have shown that the single best predictor of first-year UC performance is a student's a-f grade-point average and that test score information, combined with an a-f GPA, increases the prediction of first-year UC GPA.. BOARS may choose to design a validity study to explore alternatives to GPA and test scores as indicators of University preparation.

Simulations thus far conducted open the dialogue about the complexities of defining eligibility in the context of student preparation and postsecondary options. The University is positioned to consider alternate eligibility criteria. Other simulations can be and will be performed. As discussed in this report, the data indicate that eligibility rates reflect a theoretical construct – the degree to which the State's graduates would be eligible for admission if they were to apply. Changes in eligibility criteria may effect student preparation in high school, ideally for the betterment of all students. However, simulated eligibility rates as a function of altered criteria should not be mistaken for evidence of a similarly changed applicant pool or enrolled student body. The factors that influence students' application and enrollment behaviors extend beyond what can be explored in the theoretical realm of eligibility rates. To answer questions about the reasons for students' behaviors, the University plans to conduct collaborative research with CDE, CPEC, and CSU.

UNIVERSITY OF CALIFORNIA

High School a-f Certified Course Lists

University of California, Office of the President

Student Academic Services
High School A - F Courses Current for 1996 - 1997

NOTE: The high school listings were taken from an existing form and machine converted to HTML. Some of the formatting is therefore non - standard. We hope to improve the layout of the listings next year. A special note regarding UC Certified honors courses for which students receive extra gradepoints. The paper version identifies these courses by underlining. In this web format, only users with the Netscape 3.0 or higher browser are able to see these courses underlined. All other users will see these courses **bolded.**

The full list of all the a - f subject requirements is also available here. Details about the specific requirements for individual subject areas may be obtained by clicking on the number of years required after each a - f category. Pathways has more information about the University of California's application process.
Courses to meet requirements for admission:

CORONADO
HIGH SCHOOL (Dr. Jeffrey Davis, Principal)
City: CORONADO

a - HISTORY/SOCIAL SCIENCE

2 years required, including one year of U.S. history and...

United States History, **United States History (AP)**
American Government
World History
World History/Historical Writing (H) (W Hist/Writ)
World Geography
World Studies (H)

b - ENGLISH

4 years required. Four years of college preparatory English including...

English 9, 9 (H)
English 10, 10 (H)
English 11, **11 (H)**
English 12; **Language and Literature (AP)**

c - MATHEMATICS

3 years required, 4 years recommended including algebra, geometry...
(*may only be used for the "c" requirement)
*Algebra 1
*Geometry, Geometry (H)

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*Algebra 2
Algebra 2/Trigonometry (H) (*Algebra 2)
Pre - Calculus
Pre - Calculus (H)
Calculus I AB and IIBC (AP)

d - LABORATORY SCIENCE

2 years required, 3 recommended in at least two of three diciplines...

Biology
Chemistry
Physics
AP Biology, AP Chemistry or AP Physics B and C

e - LANGUAGE OTHER THAN ENGLISH

2 years required, 3 years recommended, of the same language...

French I - III, **French Language IV (AP)**
Spanish I - III, **Spanish Language IV (AP)**
#050680
A1 - 13 - 8/96(CORONADO UNIF. SD)

CORONADO
HIGH SCHOOL
(Dr. Jeffrey Davis, Principal)

City: CORONADO

f - COLLEGE PREPARATORY ELECTIVES

2 years required, in addition to "a - e" above...

HISTORY
All courses listed under (a)
IB Modern History (H)

ENGLISH
All courses listed under (b)

ADVANCED MATHEMATICS
All courses beyond Advanced Algebra listed under (c)

LABORATORY SCIENCE
All courses listed under (d)

FOREIGN LANGUAGE
All courses listed under (e)

SOCIAL SCIENCE

```
 Economics
 Theory of Knowledge

VISUAL AND PERFORMING ARTS
 Advanced Band
 Advanced Art
 Advanced Acting
```

NOTES: Only the above underlined or **bolded** courses will be assigned extra honors credit: (A=5, B=4, C=3)

To Pathways
Back to the High School a-f Home Page
Back to the High School a-f Search engine
Back to the Student Academic Services Home Page

This webpage updated in February of 1997 using existing documents valid as of 1 February 1997.
Problems? Contact Paul.Eykamp@ucop.edu

UNIVERSITY OF CALIFORNIA

High School a-f Certified Course Lists

University of California, Office of the President

Student Academic Services
High School A - F Courses Current for 1996 - 1997

NOTE: The high school listings were taken from an existing form and machine converted to HTML. Some of the formatting is therefore non - standard. We hope to improve the layout of the listings next year. A special note regarding UC Certified honors courses for which students receive extra gradepoints. The paper version identifies these courses by underlining. In this web format, only users with the Netscape 3.0 or higher browser are able to see these courses underlined. All other users will see these courses **bolded.**

The full list of all the a - f subject requirements is also available here. Details about the specific requirements for individual subject areas may be obtained by clicking on the number of years required after each a - f category. Pathways has more information about the University of California's application process.
Courses to meet requirements for admission:

LOS ANGELES
UNIFIED SCHOOL DISTRICT

Arroyo Seco Alternative School, Los Angeles 051531Banning High School, Wilmington 053785Bell High School, Bell 050245Belmont High School, Los Angeles 051540Birmingham High School, Van Nuys 053615Francisco Bravo Medical Magnet, Los Angeles 051719 (formerly Lincoln Medical Magnet)Canoga Park High School, Canoga Park 050465Carson High School, Carson 053515Center for Enriched Studies, Los Angeles 051561Chatsworth High School, Chatsworth 050528Grover Cleveland High School, Reseda 052618Crenshaw High School, Los Angeles 051569Susan M. Dorsey High School, Los Angeles 051795Downtown Business Magnet High School, Los Angeles 051576Eagle Rock High School, Los Angeles 051580El Camino Real High School, Woodland Hills 053801Elizabeth Street Learning Center, Los Angeles, no ATP #Fairfax High School, Los Angeles 051590Foshay Learning Center, Los Angeles 051788John H. Francis Polytechnic High School, Sun Valley 053467Benjamin Franklin High School, Los Angeles 051550John C. Fremont High School, Los Angeles 051645Gardena High School, Gardena 051020James A. Garfield High School, Los Angeles 051635Granada Hills High School, Granada Hills 051088Ulysses S. Grant High School, Van Nuys 053633Alexander Hamilton High School, Los Angeles 051525Hollywood High School, Los Angeles 051615Huntington Park High School, Huntington Park 051255Thomas Jefferson High School, Los Angeles 051815David Starr Jordan High School, Los Angeles 051575 John F. Kennedy High School, Granada Hills 051089King - Drew Medical Center High School, Los Angeles 051672Abraham Lincoln High School, Los Angeles 051520Alain L. Locke High School, Los Angeles 051523Los Angeles High School, Los Angeles 051680Manual Arts High School, Los Angeles 051700John Marshall High School, Los Angeles 051650Mid - City Alternative School, Los Angeles 051532James Monroe High School, North Hills 051902James Monroe Law and Government Magnet, Sepulveda
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LOS ANGELES UNIFIED SCHOOL DISTRICT

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Nathaniel Narbonne High School, Harbor City 051140North Hollywood Sr. High School, North Hollywood 052145North Hollywood High School/LA Zoo, North HollywoodPalisades High School, Pacific Palisades 052313Reseda High School, Reseda 052620Theodore Roosevelt High School, Los Angeles 051805San Fernando High School, San Fernando 052905San Pedro High School, San Pedro 053195Sherman Oaks Center for Enriched Studies, Reseda 052617South Gate High School, South Gate 053400Sylmar High School, Sylmar 052908William Howard Taft High School, Woodland Hills 053806Thirty - Second Street Magnet, Los Angeles, no ATP #University High School, Los Angeles 051825Valley Alternative School, Van Nuys 052154Van Nuys High School, Van Nuys 053635Van Nuys Performing Arts Magnet, Van NuysVenice High School, Los Angeles 051828Verdugo Hills High School, Tujunga 053545George Washington Prep High School, Los Angeles 051605Westchester High School, Los Angeles 051830Westside Alternative School, Los Angeles 051529Joseph Pomeroy Widney High School, Los Angeles 051655Woodrow Wilson High School, Los Angeles 051840

LOS ANGELES UNIFIED SCHOOL DISTRICT

Courses to meet requirements for admission:

a - HISTORY/SOCIAL SCIENCE

2 years required, including one year of U.S. history and...

+United States History A, B +United States Government (semester)
Advanced Placement American History A, B (AP)
American Government and Politics (AP)
European History AB (AP)
Ancient Civilization
Modern Europe
World History AB
Geography AB
Asian Studies
History of the Middle East
Latin American Studies
Mexican American Studies

b - ENGLISH

4 years required. Four years of college preparatory English including...

English 9AB, English 10AB
Advanced ESL (equivalent to English 9AB)) allow up to
ESL 3 - 4 (equivalent to either English 9AB or 10AB)) one unit +Contemporary Compc
11th grade +Advanced Composition and an English elective course) allow 2
Expository Composition and an English elective course) sem. for
English Language and Composition AB (AP)) 12th grade
English Literature and Composition AB (AP))(12th grade English electives - one seme
Drama AB) limited to
Play Production AB) one unit
Theatre Arts Workshop AB) of
Journalism 1AB, 2AB) credit
Speech AB, Advanced Speech) (10 credits)

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LOS ANGELES UNIFIED SCHOOL DISTRICT
City:

c - MATHEMATICS

3 years required, 4 years recommended including algebra, geometry...

(*May only be used for the "c" requirement) *Algebra 1AB *Geometry AB *Algebra 2AB
Calculus AB/BC (AP)
Discrete Mathematics

d - LABORATORY SCIENCE

2 years required, 3 recommended in at least two of three diciplines...

+Biology AB; Advanced Biology AB; **Biology AB (AP)** +Chemistry AB; **Chemistry AB (AP)**
Marine Biology AB

Advanced Physical Science AB
Plant and Soil Science AB
Zoology)
Genetics)
Vertebrate Physiology) These courses taught only at
Physical Anthropology) North Hollywood High School
Fundamentals of Animal Studies)
Integrated/Coordinated Science 2AB and 3AB
Agricultural Biology
Environmental Science AB (AP)

e - LANGUAGE OTHER THAN ENGLISH

2 years required, 3 years recommended, of the same language...

American Sign Language AB, 2AB
Armenian 1AB - 4AB
Chinese - Mandarin 1AB - 4AB
Chinese for Mandarin Speakers 1AB (equiv. to Mandarin 1AB and 2A)
Chinese for Mandarin Speakers 2AB (equiv. to Mandarin 2B and 3AB)
Chinese for Mandarin Speakers 3AB (equiv. to Mandarin 4AB)
French 1AB - 5AB (+2AB, +3AB)
French Language AB (AP); **French Literature AB (AP)**
German 1AB - 5AB; **German Language AB (AP)**
Hebrew 1AB - 4AB
Italian 1AB - 4AB
Japanese 1AB - 5AB
Latin 1AB - 4AB
Russian 1AB - 4AB
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LOS ANGELES UNIFIED SCHOOL DISTRICT
Courses to meet requirements for admission:

e - LANGUAGE OTHER THAN ENGLISH

2 years required, 3 years recommended, of the same language...
(continued)
Serbo - Croatian 1AB - 2AB
Spanish 1AB - 5AB (+2AB, +3AB)
Spanish for Spanish Speakers 1AB (equiv. to Spanish 1AB and 2AB)
Spanish for Spanish Speakers 2AB (equiv. to Spanish 3AB)
Spanish for Spanish Speakers 3AB (equiv. to Spanish 4AB)
Spanish for Spanish Speakers 4AB (equiv. to Spanish 5AB)
Spanish Language AB (AP); **Spanish Literature AB (AP)**

f - COLLEGE PREPARATORY ELECTIVES

2 years required, in addition to "a - e" above...

HISTORY
All courses listed under (a) plus the following:
Afro - American History
American Indian Studies
ENGLISH
All courses listed under (b) plus the following:
Film: The Integrated Art (1 semester)
Academic Decathlon (provisional)
The Bible as Literature
ADVANCED MATHEMATICS
All courses beyond Advanced Algebra listed under (c) plus the following:
Computer Science AB (AP)
Statistics, **Statistics (AP)**
LABORATORY SCIENCE
All courses listed under (d) plus the following:
Science 9AB
Science Fundamentals AB Ecology 9AB
Marine Science 9AB
Advanced Marine Science

Physical Oceanography
Explorations in Physical and Earth Science AB
Project Physics
University Preparatory Integrated Science 1AB
Integrated/Coordinated Science 1AB
Natural History of Marine Mammals - San Pedro High Marine Sci. Magnet
Animal Behavior (taght at N. Hollywood Zoo Magnet)
Environmental Studies
FOREIGN LANGUAGE
All courses listed under (e)

A1 - 13 - revised 3/97
LOS ANGELES UNIFIED SCHOOL DISTRICT
Courses to meet requirements for admission:

f - COLLEGE PREPARATORY ELECTIVES

2 years required, in addition to "a - e" above...
(continued)
SOCIAL SCIENCE
Economics
Micro - Economics (AP), **Macro - Economics (AP)**
Applied Economics
International Relations
Introduction to Anthropology
Introduction to Psychology; **Psychology (AP)**
Introduction to Sociology
Comparative Government and Politics (AP)
Government Lab: Policies and Procedures
Women in History
Philosophy
Constitutional Law
VISUAL AND PERFORMING ARTS
Art History (AP) Advanced Band AB
Drawing AB (AP) Advanced Orchestra AB
Studio Art AB (AP) Jazz Ensemble AB
Art History and Analysis AB Vocal Ensemble AB
Sculpture 2AB Choir AB
Ceramics 2ABHarmony 1AB, 2AB
Photography 2AB Music History
Painting 1AB Dance Choreography and Production
Drama AB Music Literature and Analysis
Play Production AB
Theater Arts Workshop AB
+ These courses should receive honors credit (A=5, B=4, C=3) only when indicated with

NOTES: Only the above underlined or **bolded** courses will be assigned extra honors credit: (A=5, B=4, C=3)

A1 - 13 - revised 3/97

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UNIVERSITY OF CALIFORNIA

High School a-f Certified Course Lists

University of California, Office of the President

Student Academic Services
High School A - F Courses Current for 1997 - 1998

NOTE: The high school listings were taken from an existing form and machine converted to HTML. Some of the formatting is therefore non - standard. We hope to improve the layout of the listings next year. A special note regarding UC Certified honors courses for which students receive extra gradepoints. The paper version identifies these courses by underlining. In this web format, only users with the Netscape 3.0 or higher browser are able to see these courses underlined. All other users will see these courses **bolded.**

The full list of all the a - f subject requirements is also available here. Details about the specific requirements for individual subject areas may be obtained by clicking on the number of years required after each a - f category. Pathways has more information about the University of California's application process.
Courses to meet requirements for admission:

WOODLAND
HIGH SCHOOL (Ben Flores, Principal)
City: WOODLAND

a - HISTORY/SOCIAL SCIENCE

2 years required, including one year of U.S. history and...

U.S. History A, B
American Government, **American Government (AP)**
Business Law/Government (allow 1 sem. for Gov't.)
20th Century U.S. History A/B (also Span, SDAIE)
20th Century U.S. History A/B (H)
World History (also SDAIE); Advanced World History

b - ENGLISH

4 years required. Four years of college preparatory English including...

Advanced Communications
English 9 or English 9 SDAIE
Senior Honors English (AP)
Fantasy Literature
Junior Literature/Composition (AB/BA)
Protest Literature
Transition to College English (T2C)
English 10 (IE/EI)
Junior Lit/Comp (H)
Modern Communications A/B

c - MATHEMATICS

3 years required, 4 years recommended including algebra, geometry...

(*may only be used for the "c" requirement) *Math 1 - 1, 1 - 2 (2 yr. seq. equiv. tc
Algebra 2/Trigonometry (H) (*Alg. 2)
Pre - Calculus, **Pre - Calculus (H)**

Calculus AB and BC (AP)

d - LABORATORY SCIENCE

2 years required, 3 recommended in at least two of three diciplines...

Physiology/Anatomy
Biology CORE, Advanced Biology CORE
Biology M.E.S.A.
Agricultural Biology
Chemistry Study or Chem Study (MESA), **Chemistry (H)**
Physics, **Physics (H)**

e - LANGUAGE OTHER THAN ENGLISH

2 years required, 3 years recommended, of the same language...

French I - III
Spanish I - IV, **Spanish IV (H)**, Advanced Spanish 1 and 2

#053800A1 - 13 - 8/97 (WOODLAND JT. UNIF. SD)
WOODLAND HIGH SCHOOL
(Ben Flores, Principal)
City: WOODLAND

f - COLLEGE PREPARATORY ELECTIVES

2 years required, in addition to "a - e" above...

HISTORY
All courses listed under (a)
ENGLISH
All courses listed under (b) plus the following:
Speech
Journalism 1
Journalism 2A OP, 2B OP
ADVANCED MATHEMATICS
All courses beyond Advanced Algebra listed under (c) plus the following:
Computer Programming 1 and 2
LABORATORY SCIENCE
All courses listed under (d) plus the following:
Principles of Physical Science (IPS)
Physical Science (MESA)
Integrated Science 1 and 2 (also 1 and 2 SDAIE)
FOREIGN LANGUAGE
All courses listed under (e)
SOCIAL SCIENCE
Economics
Psychology
Advanced Psychology
Sociology
Agricultural Economics and Government Policy
VISUAL AND PERFORMING ARTS
Art 1 - 3
3D/Design 1 - 3
Concert Choir
Symphonic/Marching Band
Concert Band
Jazz Ensemble
Color and Design
Advanced Problems in Studio Art (AP)
Advanced Problems in Drawing (AP)
Bach - N - Roll
Music Theory (AP)

NOTES: Only the above underlined or **bolded** courses will be assigned extrahonors credit: (A=5, B=4, C=3)

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UNIVERSITY OF CALIFORNIA

High School a-f Certified Course Lists

University of California, Office of the President

Student Academic Services
High School A - F Courses Current for 1996 - 1997

NOTE: The high school listings were taken from an existing form and machine converted to HTML. Some of the formatting is therefore non - standard. We hope to improve the layout of the listings next year. A special note regarding UC Certified honors courses for which students receive extra gradepoints. The paper version identifies these courses by underlining. In this web format, only users with the Netscape 3.0 or higher browser are able to see these courses underlined. All other users will see these courses **bolded.**

The full list of all the a - f subject requirements is also available here. Details about the specific requirements for individual subject areas may be obtained by clicking on the number of years required after each a - f category. Pathways has more information about the University of California's application process.
Courses to meet requirements for admission:

ABC UNIFIED
SCHOOL DISTRICT
City: CERRITOS
Uniform list for: Artesia H.S., Lakewood, #050155; Cerritos H.S., Cerritos, #050527; Richard Gahr H.S., Cerritos, #050722; Whitney H.S., Cerritos, #050526.

a - HISTORY/SOCIAL SCIENCE

2 years required, including one year of U.S. history and...
U.S. History/Geography; U.S. History/Geog CP, GAMA or ELD **U.S. History/Geog (H)**, or **GAMA (H)** , **U.S. Hist/Geog (AP)** **U.S. History/Geog MUN (AP)** Civics/Principles of American DemocracyCivics CP or GAMA or ELD; **Civics (H)** or **GAMA (H)**; **Civics (AP)**
World CivilizationsModern History MUN (H)World History GAMA, World History GAMA (H), World Hist. MUN (H) **European History (AP)** World History/Geography, World History/Geography/ Geography ELD World History/Geography (H), World History/Geography II (H)

b - ENGLISH

4 years required. Four years of college preparatory English including...
English I - IV G or English I - IV CP English I, I(H), II(H); GAMA English I and II (H)/CP**GAMA English III (H)**; GAMA English IV CP, **GAMA IV (AP)** English III(H); **English III(H)** (Artesia, Gahr and Whitney) **English Language (AP)** (Cerritos and Whitney only) **English IV (H)**, **English Literature (AP)** English Advanced ELD (maximum 1 unit English Enrichment English Seminar American Literature Writing Enrichment World Literature

c - MATHEMATICS

3 years required, 4 years recommended including algebra, geometry...
(*may only be used for the "c" requirement) *Algebra A, Algebra B,
Algebra BC (4 semesters equiv. to Alg. I) *Algebra I/Course I (and ELD) *Geometry/Course II (and ELD),

Geometry (H) *Algebra II/Course III (and ELD) *GAMA Mathematics - Course I, II, III
Algebra II/Trigonometry (H) (*Alg. II) Trigonometry/Math Analysis, **Trig./Math Anal. (H)** (Whitney only)
Math Analysis/Calculus A (H) (Cerritos and Artesia) **Math Analysis BC (H)** (Gahr only)
Calculus Statistics and Probability **Calculus AB and BC (AP)** **Discrete Mathematics (H)** (Whitney only)
Statistics (AP) A1 - 13 - 10/96
ABC UNIFIED SCHOOL DISTRICT
City: CERRITOS

d - LABORATORY SCIENCE

2 years required, 3 recommended in at least two of three diciplines...
Biology CP, Biology ELD, **Biology (H)**, **Biology (AP)** Chemistry CP, **Chemistry (H)**, **Chemistry (AP)** Physics CP, Physics (H), **Physics (AP)** Marine Biology **Chemistry of Living Systems (H)** Integrated Lab. Science 1, 2, 3

e - LANGUAGE OTHER THAN ENGLISH

2 years required, 3 years recommended, of the same language...
Spanish I - IV; Spanish I, II, IV (H)**Spanish III (H)**, **Spanish Language (AP)**, **Spanish Lit. (AP)** Spanish for Spanish Speakers, Spanish for Span. Speakers II, III French I - IV, French I, II, IV (H)**French III and V (H)**, **French Language (AP)**, **French Lit. (AP)** Latin I - II, **Latin III (H)**, **Latin IV (H)** Japanese I - IV, Japanese I - II (H), **Japanese III and IV (H)** Mandarin I - IV; Mandarin I - II (H) Portuguese I - IV Korean I - IV, Korean I and II (H), **Korean III and IV (H)** Korean II - IV Native Speakers, Korean II Native Speakers (H) **Korean III and IV Native Speakers (H)** Tagalog I - II Ameslan I - II

f - COLLEGE PREPARATORY ELECTIVES

2 years required, in addition to "a - e" above...

HISTORY All courses listed under (a)
ENGLISH All courses listed under (b) plus the following: Communication Interpretation Journalism I - III, Journalism ELD
ADVANCED MATHEMATICS All courses beyond Advanced Algebra listed under (c) plus the following: Computer Science Pascal **Computer Science A and B (AP)**
LABORATORY SCIENCE All courses listed under (d) plus the following: Environmental Science (Cerritos and Whitney) Senior Seminar Science
FOREIGN LANGUAGE All courses listed under (e)
ABC UNIFIED SCHOOL DISTRICT
City: CERRITOS
SOCIAL SCIENCE Economics G or CP or GAMA or ELD, Economics (H) or GAMA (H) **Economics (AP)** (Whitney only) Research Seminar on Social Ecology Psychology; **Psychology (AP)** Philosophy **Comparative Government (AP)** Humanities (H)
VISUAL AND PERFORMING ARTS Advanced Band Theatre Lab Music/Art History Art History, **Art History (AP)** Art III, IV Advanced Dance

NOTES: Only the above underlined or **bolded** courses will be assigned extra honors credit: (A=5, B=4, C=3)
A1 - 13 - 10/96

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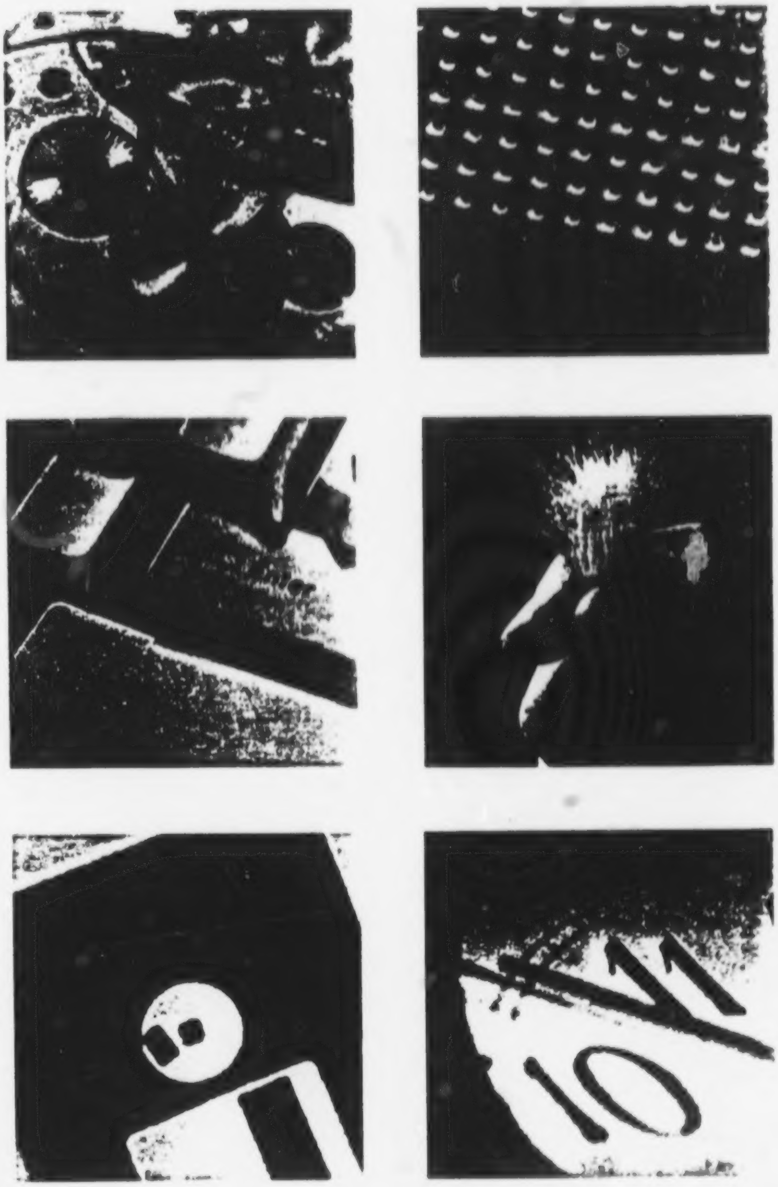
THE CALIFORNIA STATE UNIVERSITY

Undergraduate Admission



The California State University

Summer 1998 Fall 1998 Winter 1999 Spring 1999

Undergraduate
Admission Requirements

Freshman Requirements—You will qualify for regular admission as a first-time freshman if you

1. are a high school graduate.
2. have completed with a grade of C or better each of the courses in the comprehensive pattern of college preparatory subject requirements, *and*
3. have a qualifiable eligibility index (see below).

Subject Requirements—The CSU requires first-time freshman applicants to complete, with a grade of C or better in each course, the following comprehensive pattern of college preparatory study totaling 15 units. A "unit" is one year of study in high school.

- *English, 4 years.*
- *Mathematics, 3 years:* algebra, geometry, and intermediate algebra.
- *U.S. history* or U.S. history and government, *1 year.*
- *Science, 1 year* with laboratory: biology, chemistry, physics, or other acceptable laboratory science.
- *Foreign language, 2 years* in the same language (subject to waiver for applicants demonstrating equivalent competence).
- *Visual and performing arts, 1 year:* art, dance, drama/theater, or music.
- *Electives, 3 years:* selected from English, advanced mathematics, social science, history, laboratory science, foreign language, visual and performing arts, and agriculture.

Eligibility Index—The eligibility index is the combination of your high school grade point average and your test score on either the American College Test (ACT) or the Scholastic Assessment Test (SAT I). Your grade point average is based on grades earned during your final three years of high school (excluding physical education and military science) and bonus points for each C or better grade in approved honors courses.

Up to eight semesters of *honors courses* taken in the last two years of high school can be accepted. Each unit of A in an honors course will receive a total of 5 points; B, 4 points; and C, 3 points.

The table to the right shows the combination of test scores and averages required. You can calculate the index by multiplying your grade point average by 800 and adding your total score on the SAT I. Or, if you took the ACT, multiply your grade point average by 200 and add ten times the ACT composite score. If you are a California high school graduate (or a resident of California for tuition purposes), you need a minimum index of 2900 using the SAT I or 694 using the ACT. If you apply for admission before you graduate from high school, you should compute your GPA using grades earned in courses completed after the 9th grade. Do not include grades you expect to earn in courses during the remainder of 12th grade.

Eligibility Index Table for California High School Graduates or Residents of California*

GPA	ACT Score	SAT I Score
3.00 and above qualifies with any score		
2.99	10	510
2.98	10	520
2.97	10	530
2.96	11	540
2.95	11	540
2.94	11	550
2.93	11	560
2.92	11	570
2.91	12	580
2.90	12	580
2.89	12	590
2.88	12	600
2.87	12	610
2.86	13	620
2.85	13	620
2.84	13	630
2.83	13	640
2.82	13	650
2.81	14	660
2.80	14	660
2.79	14	670
2.78	14	680
2.77	14	690
2.76	15	700
2.75	15	700
2.74	15	710
2.73	15	720
2.72	15	730
2.71	16	740
2.70	16	740
2.69	16	750
2.68	16	760
2.67	16	770
2.66	17	780
2.65	17	780
2.64	17	790
2.63	17	800
2.62	17	810
2.61	18	820
2.60	18	820
2.59	18	830
2.58	18	840
2.57	18	850
2.56	19	860
2.55	19	860
2.54	19	870
2.53	19	880
2.52	19	890
2.51	20	900
2.50	20	900
2.49	20	910
2.48	20	920
2.47	20	930
2.46	21	940
2.45	21	940
2.44	21	950
2.43	21	960
2.42	21	970
2.41	22	980
2.40	22	980
2.39	22	990
2.38	22	1000
2.37	22	1010
2.36	23	1020
2.35	23	1020
2.34	23	1030
2.33	23	1040
2.32	23	1050
2.31	24	1060
2.30	24	1060
2.29	24	1070
2.28	24	1080
2.27	24	1090
2.26	25	1100
2.25	25	1100
2.24	25	1110
2.23	25	1120
2.22	25	1130
2.21	26	1140
2.20	26	1140
2.19	26	1150
2.18	26	1160
2.17	26	1170
2.16	27	1180
2.15	27	1180
2.14	27	1190
2.13	27	1200
2.12	27	1210
2.11	28	1220
2.10	28	1220
2.09	28	1230
2.08	28	1240
2.07	28	1250
2.06	29	1260
2.05	29	1260
2.04	29	1270
2.03	29	1280
2.02	29	1290
2.01	30	1300
2.00	30	1300
Below 2.00 does not qualify for regular admission		

** Reflects recentering of SAT I tests taken in April 1995 and thereafter. Qualifying scores for SAT I tests taken prior to April 1995 that have not been recentered can be determined by subtracting 100 from the SAT I scores shown in the table.*

INDEPENDENT CALIFORNIA COLLEGES AND UNIVERSITIES

THE STANDARDIZED TEST REQUIREMENTS OF SELECTED CALIFORNIA PRIVATE AND INDEPENDENT UNIVERSITIES

School	Test Required	50% Range of SAT
Art Center College of Design	ACT or SAT I	N/A
Azusa Pacific University	ACT or SAT I	minimum 880
Biola University	ACT or SAT I	recentered 1106
California Institute of the Arts	None	N/A
California Institute of Technology	SAT I:Verbal & Math SAT II: Writing, MathIIC & Physics, Chem or Bio	1430-1580
California Lutheran University	ACT or SAT I	810-1044
Chapman University	ACT or SAT I	1009-1221
Claremont McKenna College	ACT or SAT I	1260-1440
Dominican College of San Rafael	ACT or SAT I	940-1210
Fresno Pacific University	ACT or SAT I	890-1150
Golden Gate University	None	N/A
Harvey Mudd College	SAT I/SAT II	N/A
Holy Names College	SAT I or ACT	850-1060
John F. Kennedy University	None	N/A
Loma Linda University	ACT or SAT I	N/A
Loyola Marymount University	ACT or SAT I	1030-1200
Mills College	ACT or SAT I	1040-1250
Occidental College	ACT or SAT I	1070-1290
Pacific Union College	ACT	N/A
Pepperdine University	ACT or SAT I	1150-1260
Pitzer College	ACT or SAT I	1200-1380
Point Loma Nazarene	ACT or SAT I	930-1130
Pomona College	ACT or SAT I	1330-1520
St. Mary's College	ACT or SAT I	1050-1210
San Francisco Conservatory of Music	ACT or SAT I	1000-1300
Santa Clara University	ACT or SAT I	1070-1260
Scripps College	ACT or SAT I	1150-1340
Stanford University	ACT or SAT I	1310-1520
Thomas Aquinas College	SAT I	1140-1300
United States International Univ.	ACT or SAT I	760-1020
Univ. of La Verne	ACT or SAT I	880-1000
Univ. of Redlands	ACT or SAT I	980-1200
Univ. of San Diego	ACT or SAT I	990-1210
Univ. of San Francisco	ACT or SAT I	1000-1300
Univ. of Southern California(USC)	ACT or SAT I	1080-1290
Univ. of the Pacific	ACT or SAT I	990-1240
Westmont College	ACT or SAT I	1130-1200
Whittier College	ACT or SAT I	950-1140

SOURCE: THE 1997-1998 CALIFORNIA AND INDEPENDENT COLLEGES AND UNIVERSITIES GUIDE

THE COLLEGE BOARD (SAT)

The College Board
Suite 1200, Capitol Place, 915 L Street, Sacramento, California 95814-3705
Telephone (916) 444-6262 Facsimile (916) 444-2868

Sacramento Office

BRIEFING PAPER ON THE SAT

Prepared for the California Senate Select Committee on
Higher Education Admissions and Outreach

Hearing on
Validating Standardized Testing:
The Role of the SAT in Undergraduate Admissions

February 5, 1998

Educational Excellence for All Students

The College Board
Suite 1200, Capitol Place, 915 L Street, Sacramento, California 95814-3705
Telephone (916) 444-6262 Facsimile (916) 444-2868

Sacramento Office

SUMMARY

- Since 1926 the SAT I: Reasoning Test has served as the nation's most prominent college admission examination, measuring verbal and mathematical reasoning skills related to academic performance in college.

- Each year nearly two million college-bound students from more than 20,000 high schools take the SAT I.

- The SAT I supplements the secondary school record and helps the admissions officers put local data, such as course work, grades, and class rank, in a national perspective.

- The SAT works, and it works well in many different circumstances. While no single educational indicator used alone is perfectly suited to predict college performance, the SAT used in conjunction with high school grades is very powerful as a predictor of all ethnic groups in the college admissions process.

- The SATs help ensure that students from schools with easy grading policies do not have an unfair advantage in admissions, and they help colleges treat students equitably by identifying those who have high academic potential even though they have not been able to attend scholastically strong schools.

- The SAT is as free as is humanly possible of bias; it serves as an objective measure of cognitive abilities important in academic work and it enables colleges to treat their applicants fairly.

- The SAT II: Subject Tests are designed to measure knowledge, and the ability to apply that knowledge, in specific subject areas. Colleges use Subject Tests for admissions, course placement, or both.

- Over 1,408 colleges and universities use the SAT. Its broadened use is evidence that admissions professionals continue to find it a useful tool in admissions, recruitment, and retention.

- Over 95 percent of the 1.127 million seniors who enter four-year colleges and universities each year do so with the help of the SAT; this is accomplished without governmental intervention or expense.

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FORWARD

The SAT I: Reasoning Test, formerly known as the Scholastic Aptitude Test, is probably known to more Americans than any other examination except the one they take to qualify for a driver's license. The SAT is taken each year by two-fifths of our high school graduates as a rite of passage from secondary school to higher education. It is often the most visible part of the college admissions process -- yet its content, use, and role in that process are often misunderstood. Prepared for the California State Senate Select Committee on Higher Education Access and Outreach, this report seeks to describe the nature and purpose of the SAT I, addressing its contributions to education and answering the most frequently asked questions about its use. In addition, this report provides similar background information regarding two of the College Board's other well-known and widely used assessments, the SAT II: Subject Tests and the PSAT/NMSQT.

THE SAT

Introduction

Founded in 1900, the College Board is a national, non-profit association of more the 3,000 colleges and universities, secondary schools, school systems, education associations, and agencies. One of the purposes of the College Board is to assist students who are making the transition from high school to college through guidance and admissions programs and to provide them and the institutions to which they are applying with placement, credit by examination, and financial aid.

One of the original purposes of the College Board was to provide a series of common entrance examinations that would be available to students from all parts of the country, not just those who attended a few well-known preparatory schools. Those first "College Boards" represented a major step toward making higher education accessible to all students – a goal that continues to be of paramount importance to the College Board and its member institutions. The philosophical core of the College Board is its commitment to educational excellence and equity for all students.

College admissions has changed in many ways since the beginning of this century, and College Board tests have played a role in opening college doors for large numbers of students. The College Board's Admissions Testing Program continues to enable colleges and universities to identify talented students from vastly diverse backgrounds and recruit those with academic potential. (Another example of the College Board's commitment to promoting access to higher education is the College Scholarship Service. In the 1950's, the College Board membership responded to the need for a more equitable distribution of financial aid by pioneering procedures for awarding such aid according to financial need, a move that also increased educational opportunities for the less affluent and raised the level of participation in postsecondary education of minority students.)

Today, the College Board's most widely used test is the SAT, formerly known as the Scholastic Aptitude Test, which is taken by nearly two million college-bound students every year. A three-hour, mostly multiple-choice test, the SAT measures developed verbal and mathematical reasoning abilities necessary to pursue college-level work successfully. It provides a common yardstick to help admissions officers understand an applicant's academic readiness for college-level work as they review transcripts from students who have taken different courses in the more than 25,000 high schools in this nation.

The SAT was introduced in 1926, and throughout most of its long history, it has provided a separate score for each of these two areas. As such, it has been much studied and much discussed. The SAT became a prominent tool in college admissions when the members of the College Board recognized in the 1930s that the Board's program of very specific subject-matter tests was no longer appropriate or welcome since the progressive and other educational reforms freed the high school curriculum of rigid academic requirements. The early program had an adverse impact on the high school curriculum in that teachers taught to the tests. The curriculum-neutral SAT had the advantage of greater accuracy of measurement than the written subject-matter examinations it gradually replaced. Because of the large numbers of students who have taken it over more than 70 years, the SAT is the best known test in college admissions. Today's and tomorrow's post-technological society demands citizens who can read with depth and comprehension, who can reason and discern complex relationships, and who can think critically. The SAT measures these skills. In recent years, public debate has raged regarding questions of educational merit, equity, and access, making the test the subject of increased scrutiny and public attention.

The Purpose of the SAT

The SAT is not intended to be used as the sole criterion for admission to college; rather, it is designed to supplement the high school record and other information in assessing a student's competence for college work. See "Guidelines on the Uses of College Board Test Scores and Related Data" in the Appendix (College Board 1982a). The usefulness of such a supplementary measure, of course, stems partly from the unique objective information it provides about the student and partly from its ability to confirm or to question other assessment sources. When test scores are inconsistent with the high school record, or subjective information, they provide a signal that should lead to the search for more data about a student.

This supplemental nature of the SAT is worth some emphasis, for it is often forgotten. The SAT was originally intended to provide some redress for possible errors and inconsistencies in secondary school records and in the results of the essay examinations of the 1920s and 1930s, which were tailored to highly specific curriculums. By stressing the direct measurement of basic developed abilities, the test allowed a more balanced assessment of the student who had limited exposure to these specific curriculums. Further, it could help to identify the underachiever. Similarly, it served to identify the occasional case where achievements in subject matter areas were gained through unusual expenditures of effort, or where the secondary school record was more a reflection of a pleasing personality than of substantive accomplishment.

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The SAT serves as the common yardstick in the admissions process so that colleges can equitably compare the abilities of all applicants. In California where there are more than 2,000 high schools, it would be extremely difficult for admissions counselors to evaluate candidates solely on the basis of high school records due to the variation in grading standards from high school to high school and even within the same school from one teacher to another. Nationally, college applicants attend secondary schools that differ widely in curricula, difficulty of courses offered, numbers of honors and accelerated courses, and grading standards and scales. By using the SAT in admissions, colleges ensure that all applicants are exposed to the same tasks under the same conditions, and that their performance is scored objectively and on the same scale. Test scores are the only objective and impartial indicators available to students and administrators in this process. They ensure that students from schools with easy grading policies do not have an unfair advantage in admissions, and they help colleges treat students fairly by identifying those who have academic potential even though they have not been able to attend good schools. No other educationally sound, fair, and feasible method exists to obtain such information. Once admitted, colleges use the SAT as an objective standard to counsel students and place them in appropriate levels of courses, an important step in helping students successfully meet the academic demands of college and achieve their educational aspirations.

Test scores, properly used in conjunction with other information, result in decisions that are better in significant respects than those made without test scores. This has been proven over and over in the statistical validity studies that compare admissions data (such as high school grades and test scores) with grades in college.

In practice, the SAT-verbal and the SAT-mathematical scores are often made part of a formal regression equation that includes information from the high school record, the results of other tests, and other predictors as well. Alternately, test scores may be used to resolve conflicts in admission deliberations. In all these applications, the model urged for the SAT is that it not be used by itself.

In a large number of regression equations, the SAT has clearly and repeatedly demonstrated that it makes a unique contribution to the prediction of college success. The SAT showed this ability to contribute something of its own from the very beginning.

Given its essentially supplementary nature, the SAT is not ordinarily evaluated through the simple correlation with college grade point average. Much greater interest attaches to its *incremental* effectiveness, that is, to the degree to which it can improve the prediction of college grades when combined with high school academic records or perhaps SAT II: Subject Test scores. One value of the SAT, therefore, is the extent to which it can add something unique to the correlation exhibited by the other measures.

Because the high school record is largely a reflection of locally controlled curriculums and grading practices (which themselves are dependent on the nature of the student body and on the objectives of the school), there are variations from school to school in the meaning of grades. This fact inevitably works to the advantage of some college applicants and to the disadvantage of others. The SAT, on the other hand, represents a standardized independent measure of a defined set of mental tasks with the results expressed on a common scale for all students. Thus, it operates as a kind of "leveling agent," cutting across differences in local customs and conditions and affording the admissions officer a concise piece of information common to the records of all applicants. Especially in the case of students coming from schools with which the admissions officer is unfamiliar, the SAT can provide information that would otherwise be unavailable or, at best, difficult to obtain.

The College Board strongly recognizes that it has a responsibility in the public arena to ensure that its tests are used in an appropriate manner. To that end, the College Board publishes and widely disseminates Guidelines on the Uses of College Board Test Scores and Related Data. This publication clearly states the conditions the Board regards as appropriate for the use of its tests and calls attention to certain practices that are considered inappropriate. A copy of these Guidelines is included in the appendix.

Overview of SAT Program Tests

The SAT Program consists of the SAT I: Reasoning Test, the SAT II: Subject Tests, and related products and services. The SAT Program is designed to assist students, parents, high schools, postsecondary institutions, and scholarship programs with educational planning and decision making and to provide a channel of communication during the transition from high school to college.

The SAT I and SAT II assess many of the skills that are important to students' success in college. Because the subject matter of high school courses and high school grading standards vary widely, the tests have been established as a common standard against which students can be compared.

The tests are developed with the assistance of experienced high school and college teachers, who set specifications and review the content. Meticulous care goes into the writing, development, research, and evaluation of each of the tests. To ensure that the tests are fair to all students and that they are valid measures of intended content, standards are rigorously adhered to throughout the administering, scoring, and reporting phases of the program. Most students take the SAT I and SAT II tests at national administrations during their junior or senior year in high school, but there are no age or grade restrictions. In fact, students are advised to take Subject Tests as soon as they complete a course of study in subjects such as biology or American history. Additionally, colleges may arrange to administer SAT I and SAT II tests on campus to students who have not tested before applying.

The SAT I: Reasoning Test

The SAT I: Reasoning Test is a three-hour test, primarily multiple-choice, that measures developed verbal and mathematical reasoning abilities related to successful performance in college. The SAT I is intended to supplement the secondary school record and other information about the student in assessing readiness for college-level work.

SAT I: Reasoning Test Features and Content Specifications

Test Features

SAT I: VERBAL

- Two 30-minute sections plus one 15-minute section
- Emphasis on critical reading
- Vocabulary tested in the context of reading passages and in the analogies and sentence completion questions
- 78 questions, 75 minutes

SAT I: MATHEMATICAL

- Two 30-minute sections plus one 15-minute section
- Emphasis on data interpretation and applied math questions
- Calculator use permitted, but not required
- Ten questions require students to produce their own responses and enter them in special grids on the answer sheet
- 60 questions, 75 minutes

SCORES

- 200 (lowest) to 800 (highest)
- Scores reported on recentered scale for test dates on or after April 1, 1995
- A seventh test section (30 minutes, either verbal or math) is used for "equating" purposes and does not count toward a student's score

Content Specifications

Question Content	*Number of questions*
Critical Reading Questions	
Vocabulary in Context	4 - 7
Literal Comprehension	4 - 5
Extended Reasoning	28 - 32
Other Verbal Questions (analogies, sentence completion)	
Humanities	8 - 12
Social Sciences	8 - 12
Natural Sciences	8 - 12
Human Relationships	8 - 12
Arithmetic Reasoning	18 - 19
Algebraic Reasoning	17
Geometric Reasoning	16 - 17
Miscellaneous Reasoning	7 - 9

Within each section, blocks of items of a similar type are arranged in approximate order of increasing difficulty. The average difficulty of each item is approximately equal; that it, the difficult items are not all analogies, nor the easy items all sentence completions. Rather, there is an effort to achieve the same level and range of difficulty for each item type, a goal which is, of course, only approximate in practice.

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The SAT II: Subject Tests

The SAT II: Subject Tests are designed to measure knowledge in specific subject areas and the student's ability to apply that knowledge. Subject Tests are independent of particular textbooks or methods of instruction. Although the types of questions change little from year to year, the content of the tests evolves to reflect current trends in high school curriculums. Students can take Subject Tests in such diverse content areas as writing, literature, language, math, science, and history.

Many colleges use Subject Tests for admission, course placement, and to advise students about course selection. Some colleges specify which Subject Tests are required for admission or placement; others allow applicants to choose.

All Subject Tests are one-hour, multiple-choice tests. However, some have special features.

- The Writing Test has a 20-minute writing sample and 40 minutes of multiple-choice questions.
- The Language Tests with Listening include Chinese, French, German, Japanese, Korean, Spanish, and the English Language Proficiency Test (ELPT). All except the ELPT have a 20-minute listening section and a 40-minute reading section. The ELPT has 30 minutes of reading and 30 minutes of listening.
- The Mathematics Level IC and IIC Tests have some questions that require the use of a calculator, at least at the level of a scientific calculator. (Graphing calculators are recommended.) Mathematics Level I (without a calculator) will be offered for the last time in January 1998. That has been replaced on all test dates by Mathematics Level IC.
- Two new Subject Tests were introduced in November 1997: Korean with Listening and Biology E/M (Ecological/Molecular), which allows students to take a specialized test section (ecology/evolution or molecular/evolution) in addition to a shared core section. The Biology Test (general) will continue to be offered on some test dates.
- Total SAT II scores are reported on the 200 to 800 scale for all SAT II tests except the ELPT, which reports total score on a 901 to 999 scale.
- SAT II subscores are reported on a 20 to 80 scale except ELPT subscores, which are reported on a 1 to 50 scale. The Writing Test reports multiple-choice and writing sample subscores. All Language Tests with Listening report listening and reading subscores. Chinese, Japanese, and Korean also report a usage subscore.
- The ELPT reports proficiency ratings for reading and listening in addition to numerical subscores.

The SAT and the SAT II: Subject Tests are recognized as standards of quality by both the psychometric community and the colleges and schools that use the tests in the admissions process. The tests are respected by educators throughout the country as beneficial components in many different aspects of the transition from high school to college.

The Preliminary SAT/National Merit Scholarship Qualifying Test

The PSAT/NMSQT is a slightly shorter, somewhat easier version of the SAT. Its tests are parallel in content to the SAT and constructed from the questions that were used on previous, undisclosed forms of the SAT. One of the purposes of the PSAT/NMSQT is to assist students and counselors in their guidance decisions related to postsecondary education. Further, it is a useful experience for students who plan to take the SAT itself as part of the college admissions process. Co-sponsored by the College Board and the National Merit Scholarship Corporation, the test is used by the latter in preliminary selection of candidates for consideration for scholarship awards.

To enhance the usefulness of the PSAT/NMSQT test-taking experience, the PSAT/NMSQT reports the test outcome on a Report of Student Answers, which provides the correct answers and the student's responses to the questions, as well as the student's raw scores, scaled scores, and percentile ranks. This information is presented to the student with a copy of the test book. This packet of information is broadly similar to the optional SAT Question-and-Answer service, but is provided automatically to all students. In addition, schools and school systems may order a Summary of Answers, which summarizes their students' responses to each question on the test and also provides national data.

Because of its similar format and content, the PSAT/NMSQT is an excellent predictor of performance on the SAT. Test scores are reported in two digits, rather than the three digits of the SAT, but because the third SAT digit is uniformly zero, there is no basic difference in the scales. Because the SAT and PSAT/NMSQT populations are somewhat different in ability, the observed mean scores differ somewhat, with those taking SAT having the higher means. PSAT/NMSQT scores are reported on a scale of 20-80.

Standard statistical procedures for placing the PSAT/NMSQT on the SAT scale are used. Each PSAT/NMSQT form is linked to designated "parent" SAT forms and there is careful adherence to content specifications that closely parallel those of the SAT; statistically, the PSAT/NMSQT is somewhat easier.

Questions. Beginning in 1997, the PSAT/NMSQT contains 52 verbal questions (6 fewer questions than in the 1996 test) and 40 math question (10 fewer questions) in addition to 39 writing skills questions. Writing skills questions measure a student's ability to identify effective expressions in standard written English, to recognize faults in usage and structure, and to choose effective revisions. All are multiple-choice questions. There are three kinds:

Identifying Sentence Errors
Improving Sentences
Improving Paragraphs

Format and Timing. The 1997 test is slightly longer than the 1996 test – 2 hours and 10 minutes (just 10 minutes more). It consists of five sections: two 25-minute verbal sections, two 25-minute math sections, and one 30-minute writing skills section.

Score Reports. Each student receives three PSAT/NMSQT scores (Verbal, Math, and Writing Skills) as well as two estimated score on the SAT I: Reasoning Test (Verbal and Math) and one on the SAT II: Writing Test. The Selection Index used by National Merit Scholarship Corporation is the sum of three scores (V+M+W) and ranges from 60 to 240.

The PSAT/NMSQT is administered in October of each year. It is currently taken by more than two million students. Most of these students are in their junior year of high school; however, an increasing number of sophomores are choosing to take the test. For the convenience of the schools, there are two new forms each year (one administered on Tuesday and one on Saturday). Each school, however, must select one of the two test dates. Schools may arrange for individual students whose schedules do not permit testing at their own school to take the test at a nearby school that is giving the test on the other test date.

SAT Fees and Fee Waivers

Basic Registration/Reporting Fee	$13.00
SAT I: Reasoning Test (includes Basic Registration/Reporting Fee)	$22.50
SAT II: Subject Test ($13.00 Basic Registration/Reporting Fee and Total for Subject Tests)	
Writing Test	$10.00
Language Test with Listening	$ 7.00
All other Subject Tests	$ 5.00
ELPT on 4/28/98	$12.00
PSAT/NMSQT	$ 8.50

Fee waivers. The College Board provides a Fee-Waiver Service to assist students for whom payment of fees might be a serious barrier to college entrance. High schools and other educational service providers receive fee waivers for such low-income students. Eligible high school juniors and seniors students can receive up to two fee waivers for SAT I and two fee waivers for the SAT II. The actual totals will amount to more than $2.5 million in test fees waived this year. Juniors from low-income families are also eligible for fee waivers for the PSAT/NMSQT.

THE DEFINITIONS OF APTITUDE

The field of measurement does not offer any single universally accepted definition of an aptitude test. In general, an aptitude test is thought of as a means for measuring potential for a particular kind of behavior. SAT scores are intended to predict future academic performance, and they do, as the validity evidence demonstrates.

The SAT measures aspects of developed ability, rather than innate characteristics. Indeed, in common with other tests, it cannot possibly be designed to measure innate qualities. Instead, it accesses the kind of basic verbal and mathematical skills that develop over the years, both in and out of school. The content of the test does not reflect specific curriculums, although it is designed to be consistent with school-based learning.

The distinction between an achievement test and an aptitude test cannot be precisely drawn. Even though the information tested in the SAT is relatively curriculum free, students must have had experience with the skills being tested. An *aptitude* test points toward future performance; an *achievement* test may be used in this way, but assesses past attainment. Developed ability, however, is an achievement, and aptitude test scores can and do change. Thus, aptitude scores provide a basis for a prediction at a given time, not forever. If low aptitude scores are the result of educational deficits, these deficits may be overcome.

Differences in background and in interests will influence the amount and kinds of information acquired by the students, and test content is carefully balanced to avoid as many inequities as possible in selection for any subgroup of test takers. For example, although students who take the SAT vary in the number of years of mathematics studied in high school, the mathematical sections of the test require as background one year of algebra and exposure to a limited number of topics in geometry. A few of the mathematical questions will probably be more readily solved by a student who is equipped with skills learned in advanced mathematics courses, but it is possible for a student equipped only with basic arithmetic, algebraic, and geometric skills to solve all of the problems.

There is no intrinsic reason why the SAT could not include measures of other domains in addition to the verbal and mathematical. There has, in fact, been considerable research to identify other domains that might be relevant to the prediction of college success, and such research into new measurement methods is a continuing concern. However, over the more than 70 years of the SAT's existence, no other measures considered by the College Board have demonstrated such a broadly useful relationship to the criterion of the ability to predict college achievement as have the verbal and mathematical tests.

The SAT provides effective discrimination over most of the range of academic ability of college-bound students. The test is aimed not only at contributing to the decisions of institutions that have high-scoring students but also at describing levels of ability among average or lower-scoring students. The requirement that the SAT be useful for a variety of types of colleges and students strongly determines its content, for in order for the test to be efficient it must contain questions that involve content suitable for measuring the abilities of the majority of students who take it.

It would not make sense to widen the scope of its content at the expense of requiring most students to be tested on material that has little relevance to their preparation or to their particular college objective. Although no statistical index of such relevance controls the inclusion of content material or measures, the test is not likely to be altered in order to reflect special conditions that may exist in a small number of colleges. Instead, it is intended to describe what is useful for most colleges and to be adapted to a given institution by varying the relative weights given to the SAT-verbal and SAT-mathematical scores. These weights are generally based upon statistical studies done by individual colleges and may take into account the scores on one or more of the SAT II: Subject Tests or other predictors that are already available from the high school record.

Over the years, the test has evolved somewhat in the way it measures verbal and mathematical abilities. With the reintroduction of an analogy item format in 1936, the present pattern was essentially established. Modifications in item format were introduced in later years in each general area; sentence completions were not used from 1942-45 and antonyms were dropped in 1994, but the general framework has remained the same.

The rationale for selecting the item types is not narrowly psychometric. The values of several item formats, each somewhat distinctive but all yielding relatively high intercorrelations, include freedom from coaching, a more varied and interesting test, wider content sampling, and efficient time per item averages.

A significant constraint upon the test is the requirement of form-to-form comparability, which limits the rapidity with which changes can be made. The college admissions officer must be able to compare large numbers of SAT scores based on different forms of the test, taken at different times of the year, and often taken in different academic years. In order to remove the variations from one form to another in the meaning of a given raw score, scores on all forms of the test are equated and converted to the 200-to-800 standard score scale for SAT tests. Since no equating process can cope with major differences in the factorial structure of the test forms, the task of changing the SAT is one of a controlled introduction of new test content.

OVERVIEW ON VALIDITY AND THE ABILITY TO PREDICT SUCCESS IN COLLEGE

The long history of the SAT has produced a wealth of validity coefficients. The validity of the SAT is related to its effectiveness in predicting college grades. In other words, the test is considered valid if it indicates whether a students is ready for college-level work, and predicts how those students may fare in their first year of college.

Literally thousands of SAT validity studies have been conducted for institutions throughout the country for more than a half-century.

Most of the early validity studies relate to a single criterion – how effectively the SAT predicts for the overall grade point average (GPA) of college freshman. Those studies consistently reveal a high level of predictability when considering the correlation between SAT scores and freshman GPA, a slightly higher level of prediction when considering the correlation between high school grades and freshman GPA, and the highest level of prediction when considering the correlation of freshman GPA as it relates to a combination of high school grades and SAT scores. More recent studies have shown that SAT scores are more effective than high school grades at predicting grades in individual college courses.

The evidence is clear: The SAT works, and it works very well in many different circumstances. However, just as with average scores, there are differences in how it works for different groups of students, for different types of educational programs and for different institutions.

Research has shown that the SAT can over or underpredict for some groups of students. For example, data reveal that the SAT underpredicts overall freshman grades for students whose best language is not English and for Asian Americans. On the other hand, some research shows that SAT scores and other predictors slightly overpredict for male, Hispanic, African American, and American Indian students.

In recent years, much attention has been focused on the results of research that suggested the SAT was invalid, since scores on the math section apparently underpredicted the grades of women in specific college mathematics courses. Although that particular study was useful theoretical research and helped to raise important issues for specialists to consider, it did not reflect most real-world situations. Admission people use standardized test scores and other information to predict students' *overall* success, not usually to predict the grade in a specific college course.

Evidence of grade inflation within postsecondary education requires an objective measure of learned reasoning skill and the ability to predict for college success. The SAT I: Reasoning Test provides that measure, giving admission directors a valuable tool in the high school-to-college transition.

COMMON SENSE ABOUT SAT SCORE DIFFERENCES AND TEST VALIDITY

Score Differences

If students in the midwest score higher on the SAT than students from the west coast, should we assume that the test is inherently biased against western students? If students in biology courses get lower grades than those taking business courses, does that mean that the students in the business department are better students? Most observers will readily recognize that simple differences such as these do not necessarily stem from prejudice or reflect qualitative differences in the accomplishments of students. But while there are some relatively straightforward reasons for the differences just described, most subgroup differences observed in educational settings are complex and involve a variety of factors, among them:

- sample-size variations and self-selection,
- different interests, aspirations, and expectations, and
- unequal educational opportunities.

Understanding why differences exist is considerably more useful than simply dismissing differences as "bias."

Self-Selection and Sample-Size Variations

Geographic Differences. More than one million students in each high school graduating class take the SAT I: Reasoning Test at some point during their high school careers. While these million graduates represent about two-thirds of all first-year, full-time entering college students, they are not a representative sample of all states, districts, or schools. For example, in California, approximately 45 percent of all high school graduates took the SAT, compared with only 9 percent in Kansas. The relatively smaller number of students who took the SAT in Kansas were more likely to be applying to highly selective out-of-state colleges and are some of the best students in the state. Thus, it is not surprising that the average SAT scores in Kansas totaled 1150, compared with 1006 in California.

Gender Differences. The number of women taking the SAT has exceeded the number of men for more than two decades. In the class of 1996, there were 75,529 more women than men taking the SAT. These "additional" women were less likely to have taken rigorous academic course work than other students who took the SAT. In 1996, average SAT verbal scores were 503 for women and 507 for men. This four-point difference is what one might reasonably expect given that there are so many more women taking the test. In fact, research has shown that the differences in the self-selected population taking the test explains the difference in average verbal scores between men and women. If equal numbers of men and women took the SAT, the average verbal score for women would actually be somewhat *higher* than the average verbal score for men.

Different Interests, Aspirations, and Expectations

Course Selection. We know from background information that students provide when they register for the SAT that all groups of students don't take the same set of courses. Some of the more striking differences can be observed in course taking patterns in math and sciences. Table 1 shows the percentage of each group who took two of the more advanced courses in these areas. It is not surprising that a table showing average SAT math scores arranges the different groups in a very similar order.

While the SAT does not measure calculus or physics, it does measure quantitative reasoning abilities that are related to the types of skills that are developed in these and other advanced math and science courses. Research that controls for course taking differences suggests that a portion (as much as ½) of the SAT math score differences between men and women can be explained by the fact that girls and boys do not take the same pattern of math and science courses. While we are unaware of similar research that attempts to explain differences among racial/ethnic groups, it is likely that differential course taking is a factor in their average score differences.

TABLE 1

Course Selection Patterns in Math and Science

Percent Taking Calculus		Percent Taking Physics		Class of 1996 Average SAT Math Scores	
Asian-American Males	43	Asian-American Males	69	Asian-American Males	575
Asian-American Females	39	Asian-American Females	62	White Males	542
White Males	26	White Males	53	Asian-American Females	541
White Females	22	Hispanic/Latino Males	50	White Females	507
Hispanic/Latino Males	21	White Females	44	American-Indian Males	495
Mexican-American Males	18	Puerto Rican Males	43	Hispanic/Latino Males	489
Hispanic/Latino Females	16	American-Indian Males	42	Mexican-American Males	480
American-Indian Males	15	Mexican-American Males	42	American-Indian Females	462
Mexican-American Females	15	Hispanic/Latino Females	41	Puerto Rican Males	462
American-Indian Females	13	Black Males	37	Hispanic/Latino Females	449
Puerto Rican Males	13	Black Females	36	Mexican-American Females	442
Black Females	12	Puerto Rican Females	36	Black Males	431
Black Males	11	American-Indian Females	33	Puerto Rican Females	431
Puerto Rican Females	11	Mexican-American Females	33	Black Females	416

Aspirations. These course taking differences reflect students' academic interests as revealed through their choice of college major. Although most individual students will change their minds many times during their college careers, their self-reported first choice major is a useful indication of their future academic aspirations. Table 2 shows the four most popular intended majors for the young men and women in the class of 1996 who took the SAT.

TABLE 2

Intended College Major SAT Takers – Class of 1996

Men	Number	Percent	Women	Number	Percent
Engineering	65,864	15%	Health & Allied Services	129,577	25%
Business & Commerce	63,111	15%	Social Sciences & History	73,920	14%
Health & Allied Services	56,385	13%	Business & Commerce	60,510	11%
Social Sciences & History	35,169	8%	Education	59,260	11

Expectations. All students are not held up to the same standards by their teachers. It would be a rare individual who had not experienced a teacher who had the reputation of being an easy or tough grader. In addition, there is evidence that certain disciplines have more stringent grading standards than others. Self-reported data from SAT takers reveals that average high school grades are not the same for all academic areas (see Table 3).

TABLE 3

Class of 1996 Average High School GPA
(on a 4-point scale)

Arts and Music	3.68
Social Sciences and History	3.26
English	3.19
Foreign and Classical Languages	3.14
Natural Sciences	3.12
Mathematics	3.00

Differences also exist across schools. A handful of schools pride themselves on having old-fashioned standards and making students work very hard for B's as well as A's. But it is indeed rare to find a school where the average grade point average is anywhere near a "C.' Grades mean many different things. In some cases, grades are intended to capture solely what the student has learned or how proficient the student has become in the academic area. However, grades can also properly reflect other important educational outcomes and behaviors – such as completing homework assignments, participation in class discussions, teamwork, etc. One of the challenges in comparing grades across courses and across schools is the difficulty in knowing exactly what expectations a particular grade represents.

A word about grade inflation. There have been widespread reports in the media about grade inflation. This is corroborated by data about SAT takers. As shown in Table 4, over the past 10 years, the percentage of students reporting an "A" average has increased substantially.

TABLE 4

Percentage of Students Reporting an "A" Average

High School GPA	1987	1996
A+	3.7%	6.1%
A	10.7%	14.4%
A-	12.7%	15.2%
A+, A, and A-	27.1%	35.6%

This inflation has been gradual and has occurred in all subject areas

Unequal Educational Opportunities

While politicians and educational pundits argue about the exact nature of the causes of unequal educational opportunities and the most appropriate remedies, no one seriously contends that all students have identical opportunities for educational advancement. Funding, teacher education, range of course offerings, condition of physical plant, class size, and parental and other community support are just a few of the many factors that might provide some students with more or fewer opportunities to learn. Clearly, these differences will be reflected in just about any type of external measure of how well students have developed particular academic skills.

A word about family income. Social science researchers have long used family income as a proxy to indicate different levels of socio-economic status. The highest level of education attained by the mother or father in a family is used in similar ways. All of these indicators also represent certain educational opportunities. Students from higher income and higher parental education levels are considerably more likely to be in settings with the best educational resources and opportunities. Thus, it is not surprising that students from families with high incomes or with advanced academic degrees have higher SAT scores than their less fortunate peers.

Despite a strong relationship between family income and test scores, there are many students from the lower income levels with scores at the highest levels, just as there are students from affluent families with very low scores. Family income is definitely not a guarantee of a particular score.

And finally, a word about averages. Much of the discussion about differences among groups focused on differences in average scores. However, on a test with as broad a scale as the SAT, relatively few individuals are "average." Given self-selection and the difference in the absolute sizes of certain groups of SAT takers, there are some surprising findings when one looks at actual numbers.

There are more girls than boys who score above the national average in SAT verbal, even though girls have a lower average score than boys.

Number of Girls Scoring Above 500	302,760
Number of Boys Scoring Above 500	271,978

Average SAT Verbal Score – All Students	505
Average SAT Verbal Score – Girls	503
Average SAT Verbal Score – Boys	507

VALIDITY

Predicting College Grades

As we stated previously, the validity of the SAT is often described in terms of its effectiveness in predicting college grades. Literally thousands of validity studies have been conducted for institutions throughout the country for more than a half-century. The evidence is clear: The SAT works and it works very well in many different circumstances. However, just as with average scores, there are differences in how it works for different groups of students, for different types of educational programs, and for different institutions.

There are four important considerations in viewing predictive validity. The first and perhaps most fundamental relates to what one is predicting. Is it overall freshman GPA or is it performance in a very specific and standard set of individual courses? Another question deals with whether or not it means that every different group of students will eventually perform in exactly the same way. If experience shows that some group of students does somewhat better or worse than one might predict based on an all student prediction equation, does that mean that the predictors are inherently unfair? A third set of considerations relates to whether one has a full, optimum set of data to analyze. And finally, do certain types of institutions show differences in how the mix of SAT scores and other predictors work in their validity studies?

What is being predicted? Most of the early validity studies related to a single criterion – *overall freshman GPA*. For years, SAT Program guides have provided summaries of validity information of the SAT in relation to overall college freshman GPA. Table 5 is reprinted from the *Admission Staff Handbook for the SAT Program, 1996-97*. These are observed correlations, with no correction for restriction of range. Overall, median correlations show that alone, the SAT verbal and math score correlated .42 with overall freshman GPA. High school GPA alone correlated .48. And a combination of the two correlated .55. These are relatively high correlations for predicting such a complex phenomenon as college grades.

Many of these validity studies were analyzed separately for males and females. For every predictor, alone and in combination with other factors, the correlations are higher for women than for men. Why women are "more predictable" (or perhaps the question is why men are less predictable) is an area of investigation that has received little attention from researchers. The fact remains that SAT scores actually predict overall freshman GPA slightly better for women than for men.

In addition to median correlations, Table 5 also provides information at the 90th and the 10th percentile to give an indication of best and worst case situations. At a few institutions, the total group correlations are as high as .70 (for test scores and high school record combined). On the other end of the spectrum, there are correlations as low as .20 (for SAT math alone) and .31 (for high school record alone).

Predicting grades in specific college courses. During the 1980s, it became increasingly apparent that there were systematic differences in the relationship of SAT scores (and also other predictors such as high school record) with grades in different academic disciplines. Institutions were invited to provide individual course information and course level grade information as part of a special set of validity studies. The resulting data base from 45 institutions has provided a wealth of information about predicting college grades in individual courses and from many other perspectives.

TABLE 5
Predictors of College Grades

	Studies Classified by Sex			Studies Classified by College Curriculum					
	All Freshmen	Males	Females	Business	Liberal Arts	Engineering	Science	Education	Nursing
Number of Colleges	685	511	574	100	96	77	64	62	27
SAT Verbal									
90th Percentile	.52	.46	.54	.44	.48	.40	.45	.49	.47
Median	.36	.32	.39	.29	.36	.25	.32	.37	.38
10th Percentile	.21	.17	.24	.17	.21	.13	.20	.18	.24
SAT Mathematical									
90th Percentile	.50	.50	.55	.48	.44	.45	.49	.54	.49
Median	.35	.33	.40	.31	.29	.35	.38	.35	.42
10th Percentile	.20	.17	.24	.16	.15	.21	.19	.16	.19
High School Record									
90th Percentile	.64	.60	.66	.60	.63	.55	.62	.66	.67
Median	.48	.45	.50	.42	.48	.44	.48	.49	.50
10th Percentile	.31	.27	.32	.30	.32	.26	.29	.30	.34
SAT Total Score									
90th Percentile	.57	.54	.60	.54	.52	.48	.53	.60	.61
Median	.42	.39	.46	.36	.40	.38	.42	.44	.45
10th Percentile	.27	.23	.31	.23	.24	.24	.27	.23	.34
SAT Score and High School Record Combined*									
90th Percentile	.70	.66	.72	.65	.66	.62	.68	.71	.72
Median	.55	.52	.58	.52	.56	.53	.57	.59	.60
10th Percentile	.40	.35	.42	.40	.43	.39	.40	.39	.52

* The weighting is determined statistically in order to result in the best possible prediction of freshman GPA.

Source: Admission Staff Handbook for the SAT program 1996-97, Table 8, p. 30, New York: College Entrance Examination Board

Table 6 shows correlations for different predictors in 26 categories of college courses. (Note that all of these correlations have been corrected for restriction of range. See the section below on optimum data.) In general, correlations are highest in the sciences, mathematics and other quantitative areas, and lowest in physical education, arts, music, and theater. This finding is not surprising when one considers that the academic skills required for success in subjects such as math and science are likely to be skills reflected in SAT scores and in many instances by overall high school record, while the skills required for success in areas such as physical education and many of the arts are more diverse and less closely related to traditional academic measures.

A significant finding of this analysis of data by course category is that the correlation is *higher for the SAT* than for high school record alone in most areas. Overall, the average correlation for all courses was .49 for the SAT and .46 for high school record. As with earlier validity studies, the combination of SAT scores and high school record yields the best set of predictors, with the SAT adding approximately .10 to .15 points to high school record.

Group differences in prediction. Over the years, research has shown that a single prediction equation (utilizing SAT scores or high school grades alone or in combination) almost always yields certain levels of over or underprediction for different groups of students. If the predictors overpredict, that means that students in that group actually do less well than anticipated. If the predictors underpredict, that means that students do better than anticipated.

Researchers have long been aware of the underprediction of women's college grades, although the magnitude is considerably smaller than the current rhetoric might suggest. Some of the first published data showed average underprediction of women's freshman GPA to be 0.06 (on a four-point scale.) To put this in perspective, if the average GPA at a college were 3.00, then women would be expected to have an average GPA of 3.06.

TABLE 6

Correlations for Predicting College Course Grades

Number of Courses	Course Category	SAT	High School Record	SAT and High School Record	SAT Increment
87	Biology- nonmajor	.60	.56	.71	.15
26	Physical sci. & eng.-advanced	.49	.47	.60	.13
56	Economics	.55	.51	.62	.11
115	Biology-lab/major	.57	.52	.65	.13
62	Advanced mathematics	.54	.50	.63	.13
180	Calculus	.56	.52	.65	.13
189	Physical sci. & eng.-nonmajors	.55	.51	.64	.13
246	Physical sci. & eng.-lab/majors	.55	.53	.66	.13
233	History	.50	.43	57	.14
75	Regular mathematics	.52	.52	.63	.11
29	Health/ nursing	.51	.48	.62	.14
589	Social science/ humanities	.51	.47	59	.12
31	Computer science	.47	.39	.53	.14
30	Precalculus	.49	.49	.59	.10
32	Education	.50	.50	.61	.11
93	Regular reading/ literature	.48	.47	.58	.11
73	Business/ commerce	.47	.45	.58	.13
90	Regular English	.44	.49	.53	.09
115	Regular writing	.44	.44	.53	.09
144	Art/music/ theater-nonstudio	.42	.42	.52	.10
351	Foreign language-entry	.44	.49	.59	.10
225	Foreign language-beyond entry	.38	.44	.52	.08
35	Other	.36	.36	46	.10
47	Military science	.29	.26	.36	.10
129	Art/music/ theater-studio	.30	29	.39	.10
181	Physical education	.26	.21	.30	.09

Source: Admission Staff Handbook 1996-97. Table 9, p.31.

Based on the more recent summary of validity data for the 45 colleges, average over and underprediction data have been compiled for racial/ethnic groups and language background as well as for males and females. Table 7 shows over and underprediction for the overall freshman GPA, as well as individual course grades.

TABLE 7

Average Over (-) and Underprediction (+) (Actual - Predicted) by Student Group, Using Prediction Equations for All Students

All Students	Academic Composite Group			Sex			English Best Language		Ethnic Group				
	High	Medium	Low	Male	Female		Yes	No	American Indian	Asian American	Black	Hispanic	White
						FGPA Criterion*							
.00	+.13	-.05	-.09	-.02	+.02	HSGPA	.00	+.01	-.32	+.02	-.35	-.24	+.03
.00	+.25	-.01	-.25	-.06	+.06	SAT-V	-.01	+.29	-.33	+.14	-.35	-.18	+.02
.00	+.23	-.02	-.23	-.11	+.10	SAT-M	.00	+.01	-.32	+.03	-.28	-.16	+.02
.00	+.19	-.01	-.19	-.10	+.09	SAT	.00	+.18	-.29	+.08	-.23	-.13	+.01
.00	+.02	-.03	+.01	-.06	+.06	HSGPA, SAT	.00	+.15	-.24	+.04	-.16	-.13	+.01
.00	+.28	-.03	-.27	-.03	+.03	TSWE	-.01	+.28	-.35	+.17	-.36	-.20	+.02
.00	+.19	-.02	-.18	-.09	+.08	SAT, TSWE	-.01	+.22	-.29	+.11	-.22	-.12	+.01
.00	+.03	-.04	+.01	-.05	+.05	HSGPA, SAT, TSWE	.00	+.18	-.24	+.06	-.15	-.12	+.01
.00	+.02	-.03	+.01	-.03	+.03	HSGPA, SAT, Z**	.00	+.15	-.23	+.09	-.16	-.10	+.01
						Course Grade Criterion							
.00	+.11	-.04	-.08	+.01	-.01	HSGPA	.00	+.04	-.31	+.06	-.31	-.22	+.03
.00	+.22	-.02	-.23	-.03	+.03	SAT-V	-.01	+.25	-.32	+.15	-.30	-.16	+.01
.00	+.20	-.02	-.28	-.07	+.07	SAT-M	.00	+.07	-.31	+.08	-.22	-.13	+.01
.00	+.16	-.01	-.17	-.06	+.06	SAT	.00	+.18	-.27	+.12	-.18	-.10	+.01
.00	.00	-.02	+.03	-.03	+.03	HSGPA, SAT	.00	+.16	-.22	+.08	-.12	-.09	.00
.00	+.25	-.03	-.25	-.01	+.01	TSWE	-.01	+.23	-.34	+.18	+.32	-.18	+.01
.00	+.15	-.01	-.16	-.05	+.05	SAT, TSWE	-.01	+.21	-.26	+.13	-.17	-.09	.00
.00	.00	-.02	+.03	-.02	+.02	HSGPA, SAT, TSWE	.00	+.18	-.21	+.10	-.11	-.08	.00

** Z= Average grade mean residual

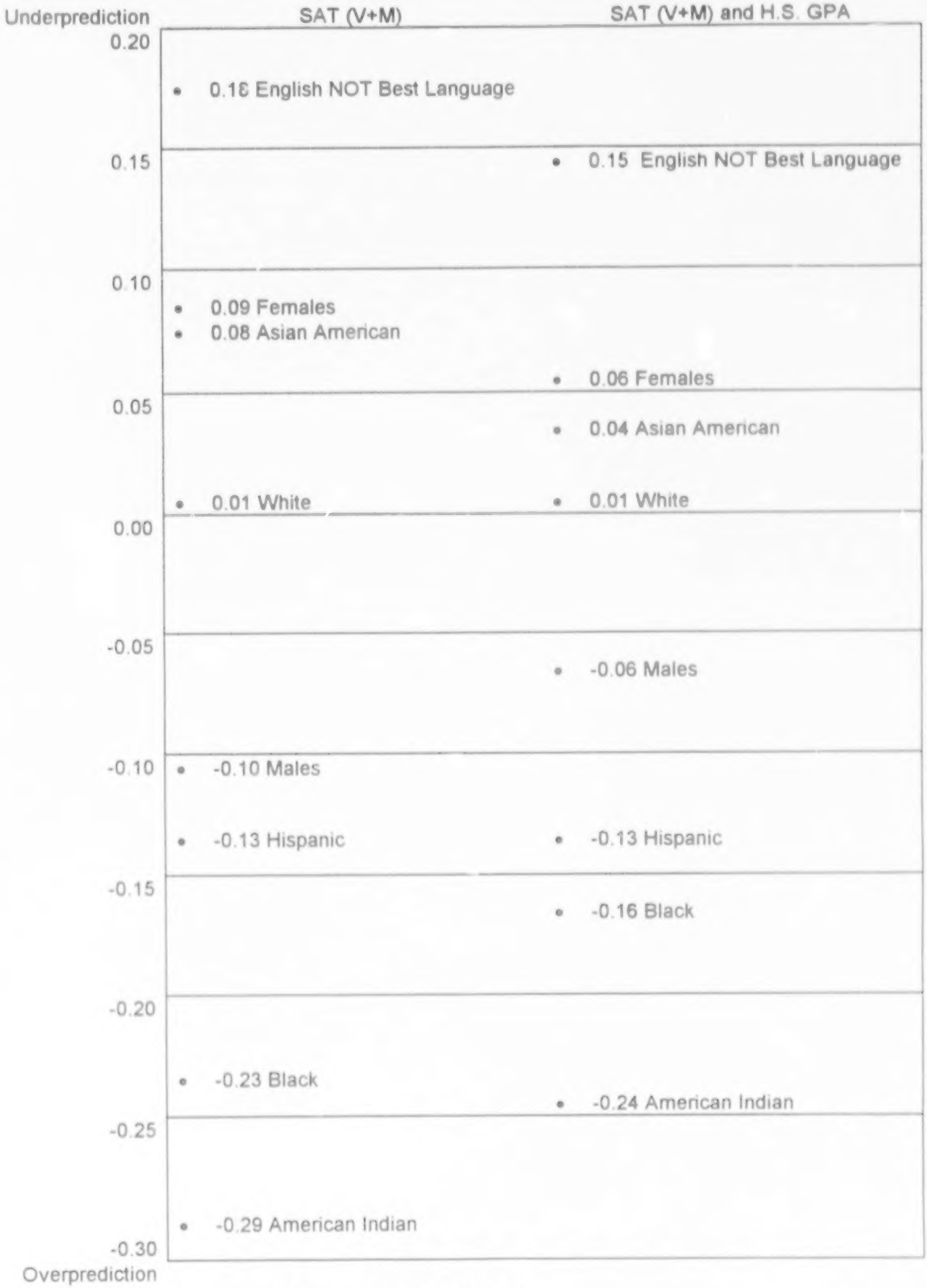
*** Mean standard deviation of course grade = .81

Source: Ramist, L. Lewis C., and McCamley-Jenkins, L., Student Groups Differences in Predicting College Grades: Sex, Language, and Ethnic Groups (1994), College Board Report No. 93-1, Table 8, p. 15. New York: College Entrance Examination Board

Looking at the top portion of this summary, it is clear that every element in a prediction equation underpredicts female freshman GPA by some extent – ranging from high school grades (which underpredict by 0.02) to SAT math alone (which underpredicts by 0.10). This table shows that most predictors also underpredict overall freshman grades for students whose best language is not English and for Asian Americans. On the other hand, most research shows that SAT scores and other predictors overpredict for male, Hispanic, African-American, and American-Indian students.

TABLE 8

Over and Underprediction of SAT Scores Alone and SAT Scores and High School GPA



Source: Adapted from Ramist, Lewis, and McCamley-Jenkins, Table 8, p.15

Table 8 graphically presents this data for the SAT alone and in combination with high school grades. While grades slightly mitigate the over or underprediction for most groups, the overall ordering of groups remains virtually the same regardless of what predictors are used.

In addition to looking at how the different elements predict overall freshman GPA, Table 7 also takes into account the specific courses that each student took. The bottom portion of this table summarizes the results for these course grade criterion. Women are more likely to select courses in the humanities that have, in general, higher average grades than engineering, math, and science courses that are more frequently taken by men.

This differential course selection gives women a 0.03 "bonus" in their overall freshman GPA and gives males a 0.03 "liability." Looking at this course – grade information, you can see that both the over and underprediction for gender are reduced by approximately 0.03.

Therefore, if you take into account differences in course selection by men and women, the over and underprediction is reduced considerably and, in many cases, completely eliminated. This phenomenon was also found in four external research reports that looked at data from Dartmouth, Stanford, and an unnamed large public university. The same general thesis has also been supported in a recent summary of data from four institutions by Pennock-Roman that shows that information about college majors can be used as a proxy for individual course grades. Nonetheless, using course level grade information is preferable.

Research, particularly in the social sciences, does not always replicate in all situations. Stricker, Rock, and Burton applied similar procedures to validity data at Rutgers. Unlike the research outlined above, in this study "course differences in grading standards had no noticeable impact on sex differences in over and underprediction." The authors hypothesize that the women and men at Rutgers may simply take more similar courses than at the other institutions studied. This research went a step further and tried to explain the over and underprediction by looking at other background variables. They found that they could "reduce or effectively eliminate" sex differences in over and underprediction by factoring in variables concerned with academic preparation, studiousness, and attitudes about mathematics.

Another set of analyses that has been the subject of considerable debate was conducted by Wainer and Steinberg. Utilizing the same data base of 45 institutions described above, they look at the data backward – that is, they look at all students with a particular grade and then calculate the original SAT math score difference between men and women. Women with the same grades had somewhat lower scores. The unweighted median difference was 33 points. In other words, for all students who had, for example, a B average, boys had SAT scores that were 33 points higher than girls.

The Wainer/Steinberg approach is not without its critics. In a recent issue of the *Journal of Educational Measurement*, Bridgeman and Lewis identify three aspects of the Wainer/Steinberg approach that are "troublesome and may lead to unwarranted conclusions."

First, they focused primarily on differences in SAT-M scores given course grades when the more important question for admissions officers is the difference in course grades given scores on the predictor. Second, they failed to account for differences among calculus courses (e.g., calculus for engineers versus calculus for liberal arts students). Most importantly, Wainer and Steinberg focused on the use of SAT-M as a single predictor.

In judging the merits of this debate, it is important to keep in mind that these later two studies are narrowly focused only on math courses and mostly on SAT-M. While this is useful theoretical research and helps raise important issues for specialists to consider, it does not reflect most real world situations. Admissions people use standardized test scores and other information to predict students' overall success. Math departments that are looking for ways to improve their placement decisions might find this specialized information useful, but such information would kick in only after admissions decisions have been made on a fuller set of predictors and criteria. Basing broad conclusions of gender bias on research that examines only one element of the test and one relatively rare type of use is likely to confuse the issue.

Optimal data. Most validity studies are based on real data – that is, real test scores and grades for students who actually applied, were admitted, matriculated, and completed at least one semester of college courses. At many institutions, this means that the data used in validity studies clusters around relatively narrow bands. For institutions that are highly competitive, the scores and high school records for almost all enrolled students are quite high. Observed correlations, such as those reported in Table 5, are lower than might be expected because, in large part, of the effects of this restriction in range. Most of the College Board Predictive studies conducted during the past decade have been corrected for restriction in range based on all students taking the SAT.

Another factor that affects validity coefficients is the lack of reliability of the criterion - in this case the freshman GPA. By examining how, for an individual student, first and second semester course grades differ, an estimate of the reliability of course grades can be determined. This information can then be used to adjust students' full freshman GPA. Correction for criterion reliability has been frequently incorporated in recent College Board validity studies.

Another less technical way of viewing the different elements in predictive validity studies is to subjectively examine the nature of the elements used in prediction and in the criterion measure. As the matrix below shows, there may be considerable overlap between the types of skills assessed by predictors and criterion, but there also may be important differences. This particular set of skills is based on a hypothetical high school where grades reflect personal characteristics, such as punctuality and class participation, as well as content coverage and a set of hypothetical college courses where grades are more closely linked to students' demonstrations of creativity and imagination in addition to content coverage. (There are undoubtedly many high schools and colleges where grades reflect other attributes.)

The closer the match between skills valued and measured, the more likely it is that predictive validity coefficients will be high. However, in cases where there is relatively little overlap, lower coefficients are to be expected. This type of subjective analysis can help illustrate why a low correlation coefficient might be desirable in situations where college course grades are not closely related to what was measured by high school record and/or test scores or, conversely, where high correlations are expected given common expectations of both predictors and criterion.

	College Grades	High School Grades	SAT Verbal	SAT Math
Verbal Reasoning	X	X	X	
Mathematical Reasoning	X	X		X
Motivation	X	X		
Punctuality		X		
Class Participation		X		
Creativity	X			
Imagination	X			

Institutional Differences. Data has been summarized by type of institution. In general, correlations are higher for more selective institutions and for students with the highest academic backgrounds within those institutions. This might be because of a stronger overlap between the skills measured on the SAT and other predictors and college grades. There is relatively little difference in the correlations for institutions of different sizes, although the largest institutions have slightly higher correlation coefficients than smaller ones.

Summary

Clearly, different groups of students show different patterns of performance on the SAT. There are many reasons for these differences. The SAT measures students' performance on a variety of academically related tasks that correspond to success at the collegiate level. Unfortunately, all students still do not have equal access to educational opportunities. The problem is further complicated by differences in who takes the SAT from within the various groups, or so called "self selection." The overall result of "self selection" is that the cross-section of students who take the SAT differs widely across demographic groups. Such "population sampling bias" contributes to the average score differences that are observed between the various groups. Finally, the means by which we quantify success in college is less than perfect. Different students take different patterns of courses in college, yet most validity research is based on a simple "freshman grade point average" without regard for the subject area in which the grades were earned.

The College Board, along with Educational Testing Service (ETS), is currently making a substantial investment in its ability to work with colleges on issues related to predicting future performance. A new validity service is being developed that will help us to devise more accurate measures of the relationship between standardized tests and academic success in college, based on grades in individual courses rather than on a global grade point average. If we are to improve our educational system, we need to address the underlying sources of group differences in test performance and validity. These differences are real differences and, while it is tempting to focus on the instruments used to measure them, such a focus can frequently obscure issues of great educational relevance.

A QUESTION OF FAIRNESS

Do differences in test performance among groups of test takers indicate bias in the test or real differences in abilities among groups? Can a test that shows different performance among groups be fairly used in the college admissions process?

One of the primary purposes of the SAT is to provide a measurement of student ability based on national rather than local criteria. It provides a way to compare students independently of the grading systems and academic competition in individual high schools. Because the SAT provides such a measure for students who come from a broad array of backgrounds and from widely diverse schools, it is crucial that the test be fair to all groups represented in the testing population.

Is the SAT fair to all students? The answer is yes. The SAT provides a fair and objective assessment of the verbal and math reasoning abilities of students and enables colleges to treat their applicants fairly. Doubts about its fairness often reflect the belief that average scores should be the same for men and women, or for other groups, regardless of real group differences in education and other factors, or that the SAT does not predict academic performance in college. Such beliefs are unfounded. In reality, a test is determined to be fair if students with the same degree of knowledge and skill get similar scores when they take it. The SAT meets this criterion.

"Fairness" does not mean "sameness." It is possible for a test to show differences among groups of test takers and still be a fair one. The question is, what causes the differences? Are they caused by the test or are they caused by real differences in ability? Assuming that the differences reflect real differences in ability, it is reasonable to further examine whether the abilities measured are meaningful for the uses to which the test is put.

In other words, test fairness can and should be examined on two levels. First, we need to find out whether the test content gives any group an advantage over other groups. Second, we need to examine whether the outcome of the test – that is, the decisions made on the basis of test scores – favors any group unfairly.

Examining Test Content

Educational Testing Service (ETS) uses two methods to guard against bias in the test questions it writes for the College Board. One, "sensitivity review," addresses questions that can be answered by examining the tests themselves. The other, "Differential Item Functioning" (DIF), is a statistical method that examines the performance of different groups of students on each item of the test.

Sensitivity Review Guards Against Bias

All SAT tests are reviewed by individuals certified by ETS as sensitivity reviewers. To be certified, reviewers take an intensive training program in sensitivity review, and they must continue to take part in periodic workshops on sensitivity issues.

The test sensitivity review is conducted to ensure that individual questions, the test as a whole, and descriptive materials do not contain language, symbols, words, phrases, and examples that might be regarded as sexist, racist, or otherwise potentially offensive, inappropriate, or negative toward any group. Special efforts are made to evaluate materials from the perspectives of women, of individuals with disabilities, and of all minority and ethnic groups. Moreover, tests are reviewed to ensure that positive contributions of women and ethnic groups are specifically represented.

In addition to sensitivity reviews, each College Board test is reviewed by a special committee made up of educators from high schools and colleges. These test committees review every aspect of the test, including sensitivity issues. Lengthy and specific guidelines are provided against which the SAT I and SAT II Tests are reviewed. Some of the highlights of the review include:

- **Cultural Diversity:** Awareness of the cultural diversity of our society has grown over the last few decades. Sensitivity review consists not only of eliminating those elements that may offend particular members of society, but also of making sure that the test content reflects the contributions of the many different ethnic and racial groups in the test-taking population.

- **Diversity of Background:** Because each test taker is different, a test question may carry an emotional connotation for one group of test takers that it doesn't carry for another. For example, a reading passage on sex differences in intellectual ability, a question on the problems of living in a ghetto, or data concerning diseases that affect certain sectors of the population, could be upsetting to certain groups of test takers. Sensitivity review identifies and eliminates questions containing such topics.

- **The Changing Force of Language:** As our society changes, attitudes toward and connotations of certain words and phrases have changed. For example, *Negro is* no longer considered an acceptable term for African-Americans; at one time people with disabilities were universally referred to as *handicapped,* but now *disabled* is the term most frequently used. The pronoun "he" is no longer accepted as correct when referring to both sexes, nor would such a phrase as "the settlers and their wives" be acceptable because it sets the women in a group apart from the settlers as a whole.

Sensitivity reviews examine all tests in the light of six specific criteria:

1. **Stereotyping:** Descriptions or settings that perpetuate stereotypes are avoided.

2. **The examinee's point of view:** Reviewers must take into account examinee's sensitivities. Test questions and answer choices with stereotypical or objectionable references are avoided. That a possibly offensive answer choice may be an incorrect choice is not relevant.

3. **Underlying Assumptions:** Although stereotyping can usually be spotted quickly, underlying assumptions can be more subtle. For instance, care must be taken not to mistake aspects of western culture as having universal value. In addition, a phrase such as "the afflicted person suffering from cerebral palsy" reflects the writer's assumptions about what it is like to live with this physical condition.

4. **Controversial material:** Controversial material that does not have anything to do with the actual content of the test is avoided. For instance, a test of general reading ability would not include a passage about abortion.

5. **Contextual considerations:** Although sensitivity review in general requires the avoidance of stereotypical and distracting or offensive language and content, the specifications of a test may require the inclusion of such material.

   A history test would not be required to avoid historical events that are unpleasant, unfair, or potentially upsetting to certain groups of test takers. Likewise, a literature test would not avoid or change passages that are important to the subject being tested but would still use language that would not be considered generally appropriate. The so-called "generic he" would not be avoided or rewritten in a Shakespearean quotation. In addition, tests of legal and medical material sometimes have to deal with issues that are specific to particular groups, for instance, the constitutional issues surrounding the detention of Japanese Americans during World War II or the incidence of Tay-Sachs disease in Jewish families and sickle-cell disease in blacks.

   Although tests in specific subjects may require the inclusion of material that could be avoided in general examinations, the necessity for the inclusion of such material is always scrutinized before it is admitted into a test.

6. **Elitism, ethnocentricity, and related problems:** This criterion refers to the inclusion of words and phrases that are more likely to be known by one ethnic or regional group than another or that might have different meanings to speakers of different dialects. Such words and phrases might include "bairn," "stickball," or "maven."

Very briefly, then, the first level of vigilance against test bias is the professional examination of tests and test materials for content that might be unfair or offensive.

Differential Item Functioning Analysis Compares Ethnic And Gender Group Performance

The second level of examination consists of a statistical method called Differential Item Functioning (DIF), which provides statistical information about how different groups of students perform on each item during the pretest process.

The DIF analysis compares how well students from four different groups perform in comparison to white students matched with them for ability. The groups compared to white students include black, Hispanic, American Indian, and Asian American students. A fifth DIF comparison looks at male versus female performance.

The statistical calculations determine the likelihood that differences in performance on a given question are the result of overall ability differences or to something inherent in the question itself. Questions that clearly perform differently for any group are carefully scrutinized and are usually eliminated from the pool of acceptable test questions. This statistical measure provides a way to examine differential question performance and adds measurably to the degree to which the College Board can be sure that the tests do not artificially benefit or discriminate against specific population groups.

Examining Test Outcomes for Bias

The second level at which the bias issue must be examined relates to use of test scores. Determining whether test results are being used fairly begins with an understanding of the purpose of the tests and extends to an examination of whether the application of test scores in the admissions process is equally valid across group lines. The SAT I and SAT II Tests are designed to help colleges predict the grades students are likely to receive in their freshman year. With the cooperation of a wide range of colleges around the country, the College Board conducts validity studies designed to check how well the test and other criteria, such as grades, are doing as predictors. Some of these studies examine subgroups within college populations. These studies indicate that the tests are as good at predicting freshman performance for most minorities as for students as a whole. In some college settings, validity studies show that the SAT is a better predictor for some minorities than high school grades and also than it is for the general population.

Another way of saying this is that, although there are clearly differences in the way different groups perform on the tests, those differences generally reflect real differences in the average skills of the students taking them. Furthermore, those differences are reflected, on the average, in college freshman grades. There are many possible explanations for these differences that have nothing to do with test bias. These explanations reach into differences in educational opportunities and experiences among different groups, differences that have not yet been fully explored by sociologists and educators.

For institutions that have a heterogeneous student population, the usefulness of test scores and other admissions criteria can be examined by conducting separate validity studies for different groups of students on campus. The results of such studies will indicate the extent to which scores are equally meaningful for all groups on a particular campus. The results also provide information to help administrators make appropriate decisions about possible adjustments in the way that test scores and other criteria are viewed, if group validity studies indicate this might be appropriate. (See "Determining the Validity of Admissions Criteria," in this series of fact sheets.) The College Board provides assistance to any institutions wishing to conduct validity studies on their campuses. These studies may be broadened to involve many more factors than just test scores.

OTHER FACTORS

Speededness

Over the years, the SAT has evolved as a power measure, with increasing amounts of time per item for both the verbal and mathematical sections. As in any timed test, however, speed is inevitably a determinant of performance to some extent, and the factor analyses of both the verbal and mathematical sections reveal factors associated with the last items in the test that seem attributable to speed. Such factors have typically accounted for no more than 5 to 10 percent of the variance.

Data on speed shows the percentage of students completing each of the four operational sections of the test on a number of forms. This measure of completion depends somewhat on the properties of the last item. Because this item is usually a very difficult question and is not marked by many students even though they may consider it, the "percentage completing 100 percent of the test" drops off considerably. This factor, coupled with variation in the average level of the students from administration to administration, must be considered in the evaluation of the differences from form to form. Another index is the number of items comprising 75 percent of the test. In general, almost all students are given enough time on the SAT to enable them to consider this percentage of the items.

Time-per-item is also a factor. For the verbal sections of the test, the section with the greater time-per-item is completed by a larger proportion of the students. For the mathematical sections. the section with more time-per-item is completed by more students.

In evaluating the role of speed in completion of the SAT, it should be recognized that there is a tension between the program requirements for relatively unspeeded tests and the constraints of a practical administration. When time limits are set too generously, more students will finish, but many students will have too much time at the end. Even under optimum conditions, the idleness of some students could have a troubling effect on other students who have not yet finished. Further, proctors may complain that their work is, consequently, more difficult.

Effects of Preparation on Test Performance

Because SAT scores can contribute to important decisions, there has been a continual concern about the students' preparation for the test. The adequacy and fairness of the test preparation are two major areas of concern. For this reason, individuals have questioned the practice of "coaching" for the SAT, in fear that students who have been coached will have an advantage over those who haven't. But the concern for preparation is truly a broader topic than just "coaching." It covers the general adequacy of all students' preparation and the question of the specific resources for preparation that can appropriately be made available.

Positions on Coaching. Do SAT coaching programs work? There is no simple answer to this questions. Anecdotal reports from individuals who had score increases and claims of many coaching schools may lead some students to think that these programs produce extraordinary

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results. However, good science demands research that compares coached with uncoached students. Many studies have been done on the subject, with the following results.

- Coaching that works best is most like hard schoolwork.
- Short-term programs (about 20 hours) improve scores an average of about 10 points on verbal and about 15 on math.
- Longer-term programs (40 hours or so) improve scores an average of 15-20 points on verbal and 20-30 on math.
- Math scores appear to benefit more from coaching than verbal scores, possible because the math section is more related to course work, some of its question types might be unfamiliar to students, and some students may have stopped formal math study and need to review its concepts.
- Longer programs yield somewhat larger gains, but diminishing returns set in quickly, with little gain after 20 or 30 hours of coaching.

When evaluating the claims of coaching schools, be aware that –

- SAT scores tend to rise over time as students improve their verbal and mathematical reasoning skills. In general, students can expect an annual growth of about 50 points on both the parts of the SAT during high school, particularly if they take a full range of college preparatory courses. Among students who repeat the test, only 5 percent experience an average gain of 100 or more points, and 1 percent loses 100 or more points.
- Higher scores are available at no cost, since the best preparation for the SAT (and college) is a strong program of academic courses and extensive outside reading, starting as early as possible. This connection is not lost on SAT takers, given the rising trend in academic study.
- Students should be familiar with the format of the SAT before taking it. To assist, the College Board gives every registrant a booklet with test-taking tips and a free SAT to practice on, and provides software, special pages on its website, and explanatory books with more sample SATs.

Test Familiarization Materials: *Taking the SAT.* The College Board supplies each test taker with a variety of information concerning the nature and purpose of the test. Over the years the form of these preparation materials has varied. At one time, there was a genuine concern that multiple-choice testing might not be well understood, and students were required to present completed workbooks that had been mailed to their homes in order to gain entry to the test. Today, this means of preparation would be unnecessary. Still, concern for the level of student preparation remains. *Taking the SAT,* introduced in 1978, contains a complete test form and answer key, together with extensive comment and advice about the test-taking experience. *Taking the SAT* makes the total test-taking experience more comfortable. Familiarization can lead to important psychological benefits even when the score is not increased, but this benefit can be easily secured without purchasing coaching materials. The Board's publications about the SAT are comprehensive and widely available, enabling students to secure full and adequate preparation at no cost.

With the introduction of test disclosure, the College Board has adopted the practice of making available copies of the disclosed tests, which may also be used by those who wish to spend more time reviewing actual *SATs*. These copies are generally available in multiform editions, of which the most recent is *10 Real SATs* (College Board 1997), containing, as its name suggests, ten forms of the test, or about 25 hours of test-taking experience. It is also possible for students to evaluate their actual performance on the SAT by using the SAT Question-and-Answer Service. This service was initially instituted in response to state legislation mandating disclosure, but has, since 1981-82, been available to *all* test takers for at least one major national administration. Upon request, and for a fee, the student may receive (1) a copy of the questions from the verbal and mathematical sections that are the basis of the SAT scores; (2) a copy of his or her answer sheet; (3) a list of correct answers; (4) the raw scores used to calculate the reported scores; and (5) a table to convert the raw scores to College Board scaled scores.

Scores from Repeated Testing

A sizable proportion of the students take the SAT more than once. The most frequent pattern of repetition involves a first testing in the spring of the junior year and a second testing in the fall of the senior year. The fact that these students have two scores, based on testings separated by several months, introduces the problems of score changes, for student growth, practice effects, and the inherent error of measurement make it unlikely that precisely the same score will be achieved by the same student the second time. How is the resulting information to be used?

Score change is of significant interest both to students and admissions officers. For the student, it involves questions concerning the best timing or the best patterning of the test taking. If the first score seems fairly high, should the test be taken again given the risk of obtaining a lower score? For the admissions officers, it raises questions concerning the best way to combine or use the multiple-score information in order to secure the most accurate estimate of future success. Should the most recent score be used? Should they be averaged?

Three factors – growth, practice, and error – contribute to score change. Errors of measurement do not produce change in any consistent direction. There are a number of error-increasing factors in the test-retest situation: random variation associated with the use of two independent forms, random variation associated with equating, and random variation associated with the changes in student performance over time. In most cases, growth and practice produce a score increment over the typical five- to eight-month period between the testings. This increment is not large; it averages about 12 points each, for example, for the verbal and mathematical scores over the seven-month period from April to November. In spite of these factors, however, a high level of correlation between junior year and senior year performance reported, approximately .88, is observed.

In a substantial number of cases, the decision of students to repeat the test in an effort to raise their scores does not produce the desired result. The percentage of repeating students who receive *lower* scores on their second testing is around 35 to 40 percent. This finding can appear disconcerting to students, to their parents, and to school personnel, whose expectations of gain are often very high. Confronted with the evidence of a loss in an individual score, or of a sizable proportion of losses in a roster of scores, the student or counselor often wonders if something is wrong with the test. Such an interpretation is seldom reached when the personal expectations are confirmed, and higher scores achieved. Yet, many of these gains are essentially as much the product of chance factors as are the declines in scores. As noted earlier, about one student in 20 will show a score increase of 100 points or more; about one student in 50 will show a decrease of 100 points or more. Thus, there is a good chance of a score increase upon a retesting some months later; the average of such gains upon retesting will be quite small and there is a substantial probability of a decline upon retesting.

Because many students do take the SAT more than once, the admissions officers often need to deal with two or more sets of scores. The best way to use such data is often a matter of concern. Although it is possible to combine such multiple-score information by statistical methods that take into account the effects of changes over time, these complex methods of analysis do not conform to the intuitive expectations of admissions officers. In 1982-83, the admissions officer was simply given the following information, in the publication *Admissions Testing Program Guide for High Schools and Colleges* (College Board 1982a, p. 18):

> Most admissions officers consider all the scores in a student's report. However, some admissions officers prefer to give students credit for their best performances and use the highest scores. The student who takes the SAT two or three times will probably receive at least one score higher than the score of the equally capable student who takes it only once. When admissions officers use only the highest scores, the student who can afford to take the test only once might be at a disadvantage compared with the student who has taken the test more than once.
>
> Some admissions officers prefer to use a student's most recent SAT scores. This choice may be less subject to error of measurement than using the student's highest scores. The most recent scores may better reflect a student's current ability.
>
> Other admissions officers calculate an average of all the student's SAT-verbal scores and an average of all the SAT-mathematical scores. This method may be the most equitable of the three, if scores span a short period.

The advice in the guide is essentially nondirective and suggests that the average of the results is probably the superior method of evaluation in the absence of other information. In most cases, the two scores are within 25 points of each other; therefore, the errors introduced through the selection of less appropriate methods for combining multiple scores are not great.

The 800 Score

Because 800 is the highest score that is reported on the College Board scale, it has acquired a mystique of its own. In fact, the concept of perfect test performance has come to be popularly, albeit incorrectly, attached to an 800 score. Actually, an upper limit of 800 is arbitrarily imposed on all scaled scores in the College Board's SAT Program. This is done mainly to control for the inevitable variation in difficulty from form to form of the test, and, consequently, the variation in the maximum scores earned by highly able students who are taking different test forms. The 800 limit operates in such a way that if, for example, the maximum raw score of 60 on the SAT-mathematical sections is established by linear equating to be 812 on the scale, the reported score is nonetheless 800. The same, but opposite, restriction is imposed at the lower end of the scale by the 200 scores, which are the lowest reported. For most forms of the test, an SAT-mathematical score of zero is not as low as 200. Because valid differentiation is possible among formula scores lower than zero (Boldt 1968), the use of these scores makes it possible to extend the scale to the desired limit.

Difficulties arise, however, when the test form is slightly easier than ideal and the maximum raw score converts by ordinary equating to something less than 800. In such cases, no student, however capable, could achieve the score of 800 without the special adjustments that are carried out. Conversely, when the test turns out to be more difficult than the specifications called for, the maximum raw score converts to a scaled score too far above 800, and the 800 score limit causes the loss of many differentiable raw score units near the end of the test. Neither of these problems is fully solvable by equating. It is best to avoid them as much as possible through uniform control in the test development process. Accordingly, the statistical specifications for the SAT reflect careful attention to this problem.

The procedures for scaling and equating the tests are described in various College Board Technical manuals.

Recentering

In the Fall of 1994 (PSAT/NMSQT) and the Spring of 1995 (SAT), the College Board recentered the SAT program score scale. Over the years, the average SAT I score had moved away from 500, the midpoint of the 200-800 scale. Recentering, through use of a normal statistical process, restored the distribution of the scores to the center of the College Board's scale, using a new reference groups of test takers from 1990. This process set both the verbal and math means for the SAT I Reasoning Test at 500, with a standard deviation of 110. Recentering simplified the comparison of verbal and math scores and also improved both the reliability and predictive validitiy of SAT program test scores and made it easier for students, high schools, and colleges to interpret scores in relation to those of a similar group of college-bound seniors.

Closing Thoughts: Statistics, the Tests, and College Policy

It is important to keep a few things in mind, some caveats, if you will, about the tests.

- The tests are statistical measures. As is pointed out in the fact sheet entitled "Interpreting SAT and Achievement Test Scores," a single test may be viewed as being accurate only within a range, for the SAT about 30 points above and below the numerical score. Thus, a single set of scores for a given student should not be considered a precise measure.

- The overall validity of the tests, nationwide, also reflects an average. Institutions differ, as do students who attend them. Validity can and should be examined on each campus to see how well the tests predict student performance and to check test validity for different groups of entering students and for different academic programs on campus.

- Tests, even tests combined with academic record, reveal certain things about students' academic abilities, but as most faculty and admissions officers know, academic background is only one element affecting overall success on campus.

The Responsible Use of Standardized Tests

It has always been a central tenet of the College Board that test score data must be used appropriately from an ethical and educational standpoint. Because the decisions and judgments influenced by test scores may have significant personal and social consequences, care should be exercised to avoid practices that might limit educational opportunities for all students. To advance the correct use of test scores and related data, sets of guidelines have been developed and adopted over the years. Copies of such guidelines are included in the appendix. Key among the guidelines is the following:

> . . . the most helpful advice it can offer users who wish to avoid inequitable or otherwise injurious practices related to test use is to consider the consequences of any test on those tested and to guard against using tests for purposes they are neither intended to serve nor capable of serving. The following are examples of test uses that should be avoided:
>
> 1. Using the SAT or other College Board tests as measures of overall performance of students, teachers, educational institutions, districts, states, and other groups.
> 2. Encouraging the belief that the SAT or other College Board tests measure a person's worth as a human being.
> 3. Using test scores as the sole basis for important decisions affecting the lives of individuals, when other information of equal or greater relevance and the resources for using such information are available.
> 4. Using minimum test scores without proper validation on the basis of students' performance within the institution, and, if appropriate, by specific programs or by student subgroups.
> 5. Making decisions about otherwise qualified students based only on small differences in test scores.
> 6. Using SAT or other scores without appropriate consideration of their validity.
> 7. Providing inadequate or misleading information about the importance of test scores in making judgment or decisions.
> 8. Requiring or recommending that certain tests be taken, when in reality the scores are not used or are used to a negligible extent.

9. Failing to recognize differences in admissions standards and requirements that may exist among different schools or departments within many institutions when providing information to prospective applicants.
10. Discouraging certain students from taking the SAT or other tests in an effort to increase a school's or district's average score.

(Guideline on the Uses of College Board Test Scores and Related Data, p. 11)

THE BENEFITS OF THE SAT

How Students and Parents Use the SAT

Students and parents use the SAT or its preliminary version, the PSAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT), for a variety of purposes in facilitating the transition from high school to college. First, the SAT is used to gauge individual abilities vis-à-vis the competition in college. Parents and students often do not know how rigorous the grading standards of their local school are. SAT scores are a gauge by which students can determine their relative standing in the academic competition for admission to a given college. The scores can help a student focus on a manageable number of colleges to which admission seems desirable and probable, given the student's abilities.

Student who take the SAT and give permission to have their names released to higher education institutions receive information from colleges that are interested in them. This exchange provides a means by which students can broaden their choices and consider educational opportunities about which they might otherwise be unaware.

The SAT provides information about students' strengths in verbal and mathematical areas, and in composition through the Test of Standard Written English. Students can begin to consider their college major and career choices in a context of comparison against others who choose majors or careers.

The SAT becomes an "advocate" for those students coming from high schools with very rigorous grading standards and whose grade-point average may indicate lower college potential than the objective measure of the SAT. Conversely, the SAT can identify students who are likely to encounter academic difficulties; the scores can indicate a need for development or remedial studies in some areas. Student in remote or relatively unknown high schools can make their promise known to colleges anywhere in the country.

Benefits to High Schools

The SAT is a useful tool for teachers and counselors giving guidance to high schools students. It can be used to assist students in choosing college majors and thinking about careers. It can help students in selecting colleges where they are likely to find the academic competition congenial and in scaling up or down students' and parents' unrealistic expectations of the colleges to which students plan to apply. The PSAT/NMSQT and the SAT can help identify talent to be encouraged and nurtured. Frequently students disguise their talents by nonconformance in the classroom or by poor work habits. The PSAT/NMSQT, particularly if taken in the sophomore year, can identify talented students who otherwise might not receive the kind of encouragement they need to proceed to higher education. Students capable of studying college-level courses while in high school can be identified and guided to advanced courses.

The PSAT/NMSQT, which offers schools a Summary of Answers for each students, can help schools evaluate their curriculum by identifying possible gaps or weaknesses, and by assessing the achievements of students by a single objective measure. The test results can also be used to report the accomplishments of students to the public, to colleges (in the form of high school profiles), and to state education authorities. Although not all students take the SAT, in many high schools most college-bound students do. Aggregate results can accurately describe the scholastic abilities and achievements of those students.

Benefits to Colleges

The SAT and the Student Descriptive Questionnaire (SDQ) that accompanies it provide colleges that receive score reports from students with information about the verbal and mathematical abilities, the academic and extracurricular backgrounds, and the educational and career aspirations of prospective applicants. Students who give permission to be included in the College Board's Student Search Service (SSS) constitute a pool of college aspirants in excess of 2,330,000 (1,455,000 in the PSAT/NMSQT pool and 875,000 in the SAT pool). The, students taking the SAT and PSAT/NMSQT create two pools of potential applicants, the smaller one consisting of those interested enough in a college to send their score report, and the larger consisting of students who may be persuaded to apply. These recruitment pools help colleges achieve their affirmative action and enrollment goals, and enable them to target their efforts at qualified students.

The SAT is the common yardstick with which colleges can compare the abilities of their applicants. The high school record alone does not enable this because of the variation in grading standards from high school to high school and from teacher to teacher. After admission to college, information from the SAT, combined with student response, help in counseling students about majors and programs of study, and in placing students in appropriate levels of courses. Placement in the appropriate courses or programs can help students meet their academic goals and increase the college's retention rate.

Academic standards are set and maintained by college faculty. Objective indices of the standards are, for example, acceptance rates in graduate and professional programs, accreditation, and standardized test scores. The SAT can help colleges set realistic academic and admissions standards by describing the academic abilities of their applicants on a common scale. Admissions decisions can be guided in part by its readily understood and objective standard. Applicants' selection of colleges is guided by the test score information provided by those institutions and by the way in which the applicants perceive they meet each college's "standard." Although meeting the test score standard should be only one of many considerations in selecting a college, it is doubtful that the "great sorting" of 1.5 million students a year into higher education could take place in the orderly fashion it does without a standardized measure such as the SAT.

Benefits to States

States benefit from the SAT in a variety of ways. States' summary reports of test scores and academic and background information enable state education officials, legislators, and the public to track the abilities, accomplishments, and aspirations of the college bound over time. Although the College Board cautions against state-by-state score comparisons because the percentage of high school graduates taking the SAT varies widely by state (from 3 percent to 80 percent), trends over time within a state can reveal how its students are progressing toward educational goals. Among the trends that might be noted are broadened participation by minorities in core academic subjects, increased study in honors courses, and shifts in demand for certain college majors or graduate degrees.

Benefits to Society

The SAT and SDQ benefit society by enabling a compilation of trends and by making possible an annual assessment about the majority of the nation's college bound. The first alarm that America's schools were slipping sounded when the College Board announced in 1975 a decade-long decline in SAT scores. The reaction – great public concern, debate, and later reform – demonstrated that the common yardstick could serve another valued role.

Admissions tests such as the SAT serve the public interest because they are sponsored by voluntary associations at no cost to the taxpayer. Society and individuals benefit from the information they generate, and the great sorting takes place without governmental intervention or expense. In the best academic tradition, college faculties are free to shape policy and admissions criteria without governmental interference. Each year over 1.5 million students distribute themselves into over 3,000 postsecondary institutions. Literally millions of individual decisions, the majority made outside the admissions office, support this process. For most of these students, test scores play a prominent role in their decision making.

APPENDIX

UNDERSTANDING THE SAT SCORES OF HISPANIC STUDENTS IN THE CONTEXT OF EDUCATIONAL OPPORTUNITIES, PERFORMANCE AND OUTCOMES

Recent discussions in California have focused attention on the educational obstacles faced by students of Hispanic origin and culture. Some have questioned the validity of the SAT for predicting the college-level academic performance of Hispanic students. It has even been suggested that the University of California should drop its SAT testing requirement for new freshman in favor of a more specific state test that covers material California students take in their college-preparatory classes. In our view, it is unfortunate that more pervasive educational issues have been overshadowed by narrowly focusing on a single metric of academic attainment.

One claim made is that "the only thing the SAT predicts well now is socioeconomic status." This statement is both inaccurate and oversimplified. It is inaccurate in that, as we have seen, the SAT is a very good predictor of academic performance in college – for all ethnic groups. It is an oversimplification in that the social and economic advantages (and disadvantages) of young people have direct bearing on their learning opportunities. For example, based on information gathered from students who took the SAT in 1997, 32.7% of Mexican-Americans report that their family income is below $20,000 (compared with 7.4% for white students). Even more striking is that 26% of Mexican-Americans report that neither parent has a high school diploma (compared with 1.1% for white students). The educational obstacles faced by Hispanic students begin even before their first day at school.

Hispanic students often struggle throughout their elementary and secondary school years to make up for lost ground, usually under the additional burden of underfunded schools and limited educational resources. Throughout the pre-college years, more than one-half of Hispanic students never attain the basic proficiency level in core academic subjects appropriate to their grade level. For example, 59% of Hispanic students in the 4th grade are below basic proficiency levels in mathematics. This number increases further to 61% by 8th grade, and by the 12th grade 50% are still operating below the basic level of mathematical skills. The lack of basic skills is at least partially related to a lack of rigorous academic curriculum that would enhance the intellectual development of these students. For 1992, only 24.9% of Hispanic high school seniors report that they were in college preparatory programs, the lowest for any ethnic group. In contrast, 40.6% of white students and 33.3% of black students reported being in college preparatory programs. Not surprisingly, Hispanic students also earn the fewest number of academic units in science and math while in high school.

In 1993, the College Board commissioned a study of group differences in the prediction of college grades. The study, conducted by Ramist, Lewis and McCamely-Jenkins at the Educational Testing Service, looked at the performance of 46,379 students at 55 colleges and universities across the country, including a number in California. One thing that was immediately clear from this study was that high school grades alone can provide a deceptive picture of how well a student is likely to do in college. In Table A below, the average high school GPA of these 46,379 students is listed, along with the average freshman GPA in college for each ethnic group.

Interestingly, Hispanic students in this sample, with an average high school GPA of 3.43, actually had the second highest high school GPA of any ethnic group. However, they also experienced the largest drop between their high school performance level and their subsequent freshman GPA in college. Data such as this points out that high school grades frequently depend as much on the difficulty of the curriculum to which students are exposed, and on the grading standards of the individual high school, as they do on what students actually learn and how prepared they are for college-level classes.

Table A	High School	College (FGPA)	Difference
White	3.40	2.66	.74
Black	3.18	2.14	1.04
Hispanic	3.43	2.37	1.06
Asian	3.58	2.80	.78
American Indian	3.26	2.21	1.05

The primary purpose of the SAT is to assist colleges and high school advisors in helping students to make the transition from high school to college. In order to accomplish this mission the SAT must be able to predict the likelihood that a student will be academically successful at a broad range of colleges and universities. A common measure of how well one event predicts another is the correlation. A perfect correlation of "1" represents a situation in which there is no uncertainty at all in the relationship between two events. A correlation of "0" corresponds to a situation in which two events are completely unrelated, and knowing one is of absolutely no help in predicting the other. As a guide, the correlation between height and weight in 10-year-olds is about .60. With this reference in mind, Table B from Ramist *et al.* below clearly indicates that both the SAT and the high school GPA are useful in predicting students' performance in college. Furthermore, by using both measures, the uncertainty in predicting college grades can be reduced even further.

Table B	SAT Alone	H.S. GPA	SAT + HSGPA
White	.47	.51	.58
Black	.48	.43	.56
Hispanic	.41	.48	.54
Asian	.49	.47	.58
American Indian	.39	.51	.56

The GPA that students earn during their freshman years is greatly influenced by the difficulty of the courses they choose to take. As Table C (also from Ramist *et al.*) indicates, the ability of the SAT to predict college performance, either alone or with the high school GPA, is greatly enhanced when the prediction is based on the grades students earn in individual courses. In fact, for most ethnic groups the SAT alone is a better predictor of course grades than are high school grades alone.

Table C	SAT Alone	H.S. GPA	SAT + HSGPA
White	.59	.57	.69
Black	.57	.46	.64
Hispanic	.55	.55	.68
Asian	.63	.63	.76
American Indian	.48	.59	.70

Another way of looking at correlations is to translate the relationship into a predicted freshman grade point average in college. The difference between students' predicted and actual freshman grade point average in college is one way of measuring the accuracy of the prediction. Table D below compares predicted freshman GPA, based on the SAT test alone, with students' actual freshman GPA in college. In general, the predicted GPA's are close approximations to actual freshman performance, even without the benefit of considering individual course grades. For two groups, white and Asian students, the SAT tends to predict a slightly lower GPA than these students actually earn. For the other three ethnic groups, including Hispanic students, the SAT tends to predict a slightly higher GPA than the students actually earn. In particular, the SAT predicts that Hispanic students would earn a 2.50 GPA, on average, at the 55 institutions participating in the Ramist study. In actuality these students earned a 2.37 GPA.

Table D	Predicted GPA	Actual FGPA	Difference
White	2.65	2.66	+ .01
Black	2.37	2.14	- .23
Hispanic	2.50	2.37	- .13
Asian	2.72	2.80	+ .08
American Indian	2.50	2.21	- .29

The Ramist *et al.* study establishes that the SAT is a very good predictor of college performance for all ethnic groups, including Hispanic students. The SAT is an even better predictor when combined with the students' high school GPA. Furthermore, to the extent that predictions for Hispanic students based on the SAT do vary from actual performance, the predictions tend to be higher than the actual performance. Given these results, it is unlikely that Hispanic students' chances of admission are unfairly hurt by the SAT.

The ultimate goal of the higher educational system is to educate and graduate the students who are admitted. Students who are admitted to colleges or universities where the curriculum is beyond their level of academic preparation are unlikely to be academically successful, and placing students in such a situation does them a disservice. The best use of information from the SAT, and other academic performance measures, is to judge the likelihood that a student has the academic preparation necessary to succeed at a particular institution. It is one thing to use the

SAT in estimating the likelihood that a student can succeed in college. It is quite another matter to select a smaller group of students to admit from a relatively larger group of qualified students, all of whom are academically prepared to meet the institution's educational challenge. The SAT, in conjunction with high school grades, is the best means available to identify students who are likely to be academically successful. Other means beyond standardized test scores could and should be employed to make the difficult decision of selecting from among all qualified applicants. However, eliminating the best tool available for judging the ability to succeed will not ensure equal access to all who are capable of succeeding, and runs the risk of increasing an already troublesome situation in which only 41% of Hispanics who enter college seeking a four-year degree end up with any degree at all.

Q&A Information

1. Do Hispanic students have equal access to educational opportunities prior to the beginning of formal schooling?

TABLE E

Percentage of 1997 SAT takers reporting family income below $20,000

NO RESPONSE	17.4%
AMERICAN INDIAN, ALASKAN NATIVE	16.5%
ASIAN, ASIAN-AM, PACIFIC ISLANDER	23.6%
BLACK OR AFRICAN-AM	33.0%
MEXICAN OR MEXICAN-AM	32.7%
PUERTO RICAN	31.8%
LATIN-AM, SOUTH-AM, CENTRAL-AM, OTH HISPANIC	31.8%
WHITE	7.4%
OTHER	20.1%
TOTAL	14.2%

TABLE F

Percentage of 1997 SAT takers reporting that
neither parent graduated from high school

NO RESPONSE	4.4%
AMERICAN INDIAN, ALASKAN NATIVE	3.3%
ASIAN, ASIAN-AM, PACIFIC ISLANDER	10.6%
BLACK OR AFRICAN-AM	4.3%
MEXICAN OR MEXICAN-AM	26.2%
PUERTO RICAN	9.1%
LATIN-AM, SOUTH-AM, CENTRAL-AM, OTH HISPANIC	14.3%
WHITE	1.1%
OTHER	5.7%
TOTAL	3.9%

2. Do Hispanic students score as well as other students on proficiency tests during elementary and secondary school?

TABLE G

Percentage Scoring below basic proficiency level

		4th Grade	8th Grade	12th Grade	Year of Study
History	Hispanic	59	59	78	1994
	All Students	36	39	43	
Geography	Hispanic	51	50	52	1994
	All Students	30	29	30	
Math	Hispanic	59	61	50	1996
	All Students	36	38	31	

*Source: National Center For Educational Statistics, 1996 Digest of Educational Statistics (page 124).

3. Do Hispanic students take as many academic courses as other students?

TABLE H

Percentage of 1997 SAT test takers reporting 3 or more years of a given subject

	Science	Math	Social Science	English
NO RESPONSE	87.0%	95.8%	89.8%	97.3%
AMERICAN INDIAN, ALASKAN NATIVE	82.7%	95.2%	88.4%	98.5%
ASIAN, ASIAN-AM, PACIFIC ISLANDER	88.5%	97.5%	87.1%	97.8%
BLACK OR AFRICAN-AM	85.3%	96.4%	88.6%	98.4%
MEXICAN OR MEXICAN-AM	78.0%	96.5%	84.7%	98.6%
PUERTO RICAN	85.7%	96.7%	92.2%	98.9%
LATIN-AM, SOUTH-AM, CENTRAL-AM, OTH HISPANIC	85.3%	97.0%	89.1%	98.3%
WHITE	89.0%	97.3%	91.2%	98.8%
OTHER	86.1%	96.7%	89.4%	98.4%
Total	87.8%	97.1%	90.1%	98.6%

TABLE I

Percentage of 1992 high school seniors reporting that they were in college preparatory programs

White	40.6%
Black	33.3%
Hispanic	24.9%
Asian	55.9%
American Indian	19.1%

*Source: National Center For Educational Statistics, 1996 Digest of Educational Statistics (page 131).

TABLE J

Average number of Carnegie units earned by public high schools graduates 1982-1992

	Mathematics	Science
White	2.59	2.24
Black	2.53	2.04
Hispanic	2.26	1.79
Asian	3.14	2.59
American Indian	2.09	1.96

*Source: National Center For Educational Statistics, 1996 Digest of Educational Statistics (page 132).

4. How does the performance of Hispanic students in high school and college compare?

TABLE K

Average High School and College Freshman GPA

	High School	College (FGPA)
White	3.40	2.66
Black	3.18	2.14
Hispanic	3.43	2.37
Asian	3.58	2.80
American Indian	3.26	2.21

*Source: Ramist, Lewis and McCamely-Jenkins, College Board Report No. 93-1 (1993). [grades for high school and college represent the same students]

5. Is the SAT alone a valid predictor of college performance for Hispanic students? Does the SAT in combination with high school grades predict better than either alone?

TABLE L

Correlations with actual Freshman GPA in college

	SAT Alone	H.S. GPA	SAT + HSGPA
White	.47	.51	.58
Black	.48	.43	.56
Hispanic	.41	.48	.54
Asian	.49	.47	.58
American Indian	.39	.51	.56

*Source: Ramist *et al.*, 1993.

TABLE M

Correlations with individual course grades in college.

	SAT Alone	H.S. GPA	SAT + HSGPA
White	.59	.57	.69
Black	.57	.46	.64
Hispanic	.55	.55	.68
Asian	.63	.63	.76
American Indian	.48	.59	.70

*Source: Ramist *et al.*, 1993.

6. Does the performance of Hispanic students differ from that predicted by the SAT alone?

TABLE N

Predicted Versus Actual Freshman GPA

	Predicted FGPA	Actual FGPA	Difference
White	2.65	2.66	+ .01
Black	2.37	2.14	- .23
Hispanic	2.50	2.37	- .13
Asian	2.72	2.80	+ .08
American Indian	2.50	2.21	- .29

*Source: Ramist *et al.*, 1993 (grades for high school and college represent the same students).

7 Do Hispanic students who seek a bachelor's degree graduate at the same rate as other students?

TABLE O

Percentage of students seeking a bachelor's degree in 1989-90 who
had received any degree or certificate by 1994

White	56.4%
Black	45.2%
Hispanic	41.3%
Asian	52.8%

*Source: National Center For Educational Statistics, 1996 Digest of Educational Statistics (page 318).

5. *When College Board tests are used for admissions purposes, the responsible officials and selection committee members should:*

5.1 Know enough about tests and test data to ensure that their proper uses and limitations are understood and applied.

5.2 Use test scores and related data from the College Board's Admissions Testing Program in conjunction with other indicators, such as the secondary school record, in predicting the applicant's chances for success at a particular institution.

5.3 Take into appropriate consideration predictions of performance for applicant subgroups — men and women, ethnic groups, international students, adults, and those interested in different academic programs — in developing equitable admissions policies and practices.

5.4 Guard against using minimum test scores unless used in conjunction with secondary school performance and unless properly validated.

5.5 Ensure that small differences in test scores are not the basis for rejecting an otherwise qualified applicant.

5.6 Refrain from offering admission to prospective students solely on the basis of test scores before they have applied.

5.7 Validate data used in the selection process regularly (generally at least every three years) to ensure their continuing relevance, using, if desired, the College Board's Validity Study Service.

5.8 View admissions test scores as contemporary and approximate indicators rather than as fixed and exact measures of a student's readiness for college-level work.

5.9 Maintain adequate procedures for protecting the confidentiality of test scores and other admissions data.

5.10 When introducing or revising admissions policies, allow sufficient lead time and provide adequate notice to schools and students, so that they can take the new policies into account when planning school programs and curricular offerings.

6. *When systems or groups of colleges use College Board tests for admission purposes, the officials responsible for the group or system should:*

6.1 Adhere to the guidelines for the use of tests for admissions purposes outlined in Section 5.

6.2 Validate data used in the selection process for the individual institution, and conduct appropriate system or group studies regularly (generally at least every three years) to ensure their continuing relevance.

6.3 Before determining the admissions policies to be adopted for the group or system of colleges, allow sufficient time and opportunity for representatives of the individual institutions to consider and discuss possible policies and to suggest alternative policies, especially as these relate to their institutions.

7. *When College Board tests are used for placement and credit purposes, the responsible officials should:*

7.1 Determine the appropriateness of particular tests through consultation with faculty members familiar with the content of the tests.

7.2 Establish standards appropriate to the performance levels and ranges of their enrolled students.

7.3 Accept the transfer of credits earned by examination at a previous institution when scores and test content meet their own standards.

7.4 Publicize their placement and credit policies, making clear which tests are used, how students gain access to them, what scores are required, how much credit may be awarded for each examination, whether or not credits granted meet degree requirements, and how much total credit may be obtained.

7.5 Identify as such the credits granted by examination on students' records and transcripts.

7.6 Establish fees, if any, for credits awarded by examinations that represent actual costs involved in providing this avenue to credit rather than instructional costs or other unrelated costs.

Avoiding the Misuse of Test Scores

Adhering to the foregoing guidelines will help ensure that test scores and related data are used appropriately from an ethical and educational standpoint. Because the decisions and judgments influenced by test scores may have significant personal and social consequences, care should be exercised to avoid practices that might limit educational opportunities for all students. When the guidelines outlined in the previous sections are properly followed, the result of using test scores should be decisions that are better in significant respects than they would have been without the influence of the scores.

The Council on Entrance Services of the College Board has found that, although a few specific uses of tests meet with either universal approval or disapproval, most uses can be counted on to provoke at least some debate about their merits or flaws. The disagreements sometimes turn on differences in the specific circumstances that may accompany a particular practice. Judgments about the use of test scores to screen applicants, for example, may be influenced by such considerations as how valid the tests are as predictors, how feasible it is to use other information instead of or in addition to the scores, and how many applicants can be accepted by the college or university. The technical issues raised, however, are ultimately likely to be of less significance than are questions of public policy and institutional prerogatives.

The Council has concluded that the most helpful advice it can offer users who wish to avoid inequitable or otherwise injurious practices related to test use is to consider the consequences of any test on those tested and to guard against using tests for purposes they are neither intended to serve nor capable of serving. The following are examples of test uses that should be avoided:

1. Using the SAT or other College Board tests as measures of the overall performance of students, teachers, educational institutions, districts, states, and other groups.
2. Encouraging the belief that the SAT or other College Board tests measure a person's worth as a human being.
3. Using test scores as the sole basis for important decisions affecting the lives of individuals, when other information of equal or greater relevance and the resources for using such information are available.
4. Using minimum test scores without proper validation on the basis of students' performance within the institution, and, if appropriate, by specific programs or by student subgroups.
5. Making decisions about otherwise qualified students based only on small differences in test scores.
6. Using SAT or other scores without appropriate consideration of their validity.
7. Providing inadequate or misleading information about the importance of test scores in making judgments or decisions.
8. Requiring or recommending that certain tests be taken, when in reality the scores are not used or are used to a negligible extent.
9. Failing to recognize differences in admissions standards and requirements that may exist among different schools or departments within many institutions when providing information to prospective applicants.
10. Discouraging certain students from taking the SAT or other tests in an effort to increase a school's or district's average score.

Table 8

1997 Profile of College-Bound Seniors

High School Information

NATIONAL

	SAT I Test Takers		Percent		SAT I Mean Scores	
Size of Senior Class	Number	Percent	Male	Female	Verbal	Math
More than 1,000	2,990	0	50	50	533	558
750 - 1,000	14,932	1	45	55	499	521
500 - 749	108,082	10	45	55	502	515
250 - 499	424,003	40	46	54	507	515
100 - 249	353,387	33	46	54	505	505
Fewer than 100	152,238	14	46	54	517	513
Not Known	70,381					
Type of High School						
Public	885,855	83	45	55	502	508
Religiously Affiliated	129,883	12	49	51	525	514
Independent	54,841	5	53	47	547	560
Not Known	56,442					
Location of High School						
Large City	241,907	23	46	54	493	499
Medium-size City	141,456	13	45	55	508	510
Small City or Town	203,288	18	46	54	504	505
Suburban	354,283	33	47	53	522	530
Rural	121,824	11	45	55	497	485
Not Known	84,243					
Within U.S.	1,084,733	96	46	54	505	509
Outside U.S.	28,142	3	52	48	503	546
Unknown	13,148	1	56	44	473	581

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Table 4-1

1997 Profile of College-Bound Seniors

Background Information

NATIONAL

SAT I Test Takers Who Described Themselves as:	Number of Males	Females	Total	Percent Male	Female
American Indian or Alaskan Native	4,980	5,697	10,677	47	53
Asian, Asian American, or Pacific Islander	43,412	45,824	89,236	49	51
Black or African American	44,977	65,485	110,462	41	59
Hispanic or Latino Background:					
Mexican or Mexican American	17,056	22,681	39,737	43	57
Puerto Rican	5,598	7,610	13,208	42	58
Latin American, South American, Central American, or Other Hispanic or Latino	14,332	18,791	33,123	43	57
White	317,058	376,678	693,736	46	54
Other	13,734	17,316	31,050	44	56
No Response	59,191	46,601	105,792	56	44

SAT I Test Takers Who Described Themselves as:	Number of Males	Females	Total	Percent Responding Male	Female	Total
American Indian or Alaskan Native	4,980	5,697	10,677	1	1	1
Asian, Asian American, or Pacific Islander	43,412	45,824	89,236	9	8	9
Black or African American	44,977	65,485	110,462	10	12	11
Hispanic or Latino Background:						
Mexican or Mexican American	17,056	22,681	39,737	4	4	4
Puerto Rican	5,598	7,610	13,208	1	1	1
Latin American, South American, Central American, or Other Hispanic or Latino	14,332	18,791	33,123	3	3	3
White	317,058	376,678	693,736	69	67	68
Other	13,734	17,316	31,050	3	3	3
Total	461,147	560,082	1,021,229	100	100	100

SAT I Test Takers Who Described Themselves as:	SAT I Verbal Mean Scores Male	Female	Total	Standard Deviations Male	Female	Total	SAT I Math Mean Scores Male	Female	Total	Standard Deviations Male	Female	Total
American Indian or Alaskan Native	476	475	475	102	101	102	492	460	475	103	97	101
Asian, Asian American, or Pacific Islander	496	494	496	124	127	126	578	543	560	119	118	120
Black or African American	431	436	434	101	101	101	433	416	423	101	93	97
Hispanic or Latino Background:												
Mexican or Mexican American	456	448	451	103	102	102	478	444	458	101	94	99
Puerto Rican	460	450	454	106	103	104	469	431	447	108	96	103
Latin American, South American, Central American, or Other Hispanic or Latino	473	461	466	110	109	109	492	449	468	110	101	107
White	528	524	526	102	100	101	545	510	526	105	99	103
Other	516	509	512	120	119	120	537	495	514	115	111	115
No Response	488	490	489	121	125	123	513	488	502	122	120	122

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Table 4-2

1997 Profile of College-Bound Seniors

Background Information (Continued)

NATIONAL

	SAT I Test Takers		Percent		SAT I Verbal		SAT I Math	
	Number	Percent	Male	Female	Mean Scores	Standard Deviations	Mean Scores	Standard Deviations
All SAT I Test Takers	1,127,021		46	54	505	111	511	112
First Language Learned								
English	845,543	82	45	55	515	106	513	108
English and Another Language	90,817	9	45	55	483	114	498	120
Another Language	88,082	8	46	54	452	120	515	125
No Response	98,489							
Citizenship								
U.S. Citizen or U.S. National	942,136	92	45	55	512	107	511	110
U.S. Permanent Resident or Refugee	44,813	4	45	55	442	121	498	125
Citizen of Another Country	33,705	3	52	48	475	122	555	118
Other, Unknown, or No Response	106,267							
Disabling Condition								
Yes	45,603	5	51	49	472	115	471	114
No	946,481	95	45	55	509	108	514	110
SAT I Taken Under								
Standard Conditions	1,105,403	98	46	54	506	111	512	112
Nonstandard Conditions	21,618	2	62	38	463	113	461	119
Plans to Apply for Financial Aid								
Yes	784,588	76	44	56	505	110	508	111
No	70,331	7	50	50	515	108	533	110
Don't Know	168,711	16	50	50	509	108	518	110
Family Income								
Less Than $10,000	45,499	5	37	63	428	112	445	114
$10,000 - $20,000	85,343	8	40	60	454	109	464	108
$20,000 - $30,000	108,298	12	43	57	480	105	482	107
$30,000 - $40,000	128,185	14	45	55	496	103	497	105
$40,000 - $50,000	108,700	12	46	54	507	102	508	104
$50,000 - $60,000	105,452	11	47	53	515	102	518	104
$60,000 - $70,000	80,402	9	48	52	522	102	526	104
$70,000 - $80,000	69,603	7	49	51	529	101	533	104
$80,000 - $100,000	81,218	9	49	51	540	101	544	103
More Than $100,000	111,252	12	50	50	559	103	571	104
No Response	208,061							
Highest Level of Parental Education								
No High School Diploma	44,135	4	40	60	412	102	441	107
High School Diploma	344,201	34	42	58	474	100	476	102
Associate's Degree	82,705	9	44	56	488	99	489	101
Bachelor's Degree	285,512	28	47	53	524	103	530	105
Graduate Degree	254,595	25	49	51	558	107	580	108
Calculator Experience								
Use Almost Every Day	698,382	73	45	55	525	106	534	107
Use Once or Twice Weekly or Less	255,975	27	45	55	475	105	471	102
Never Use or No Response	172,664							
Took the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT)								
Yes	785,590	80	44	56	523	106	527	107
No	202,077	20	50	50	457	106	464	108
Unknown or No Response	139,354							

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AMERICAN COLLEGE TEST
(ACT)

Using the ACT Assessment in Making Admissions and Course Placement Decisions

A brief submitted to the California Senate Select Committee on Higher Education Admissions and Outreach

February 5, 1998

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Introduction

ACT is an independent, not-for-profit organization that provides a variety of educational services to students and their parents, to high schools and colleges, and to professional associations and government organizations. ACT was founded in 1959 by E. F. Lindquist, a world-renowned authority on educational measurement and educational statistics, a professor at the University of Iowa, and a trustee of the College Board. During the 1950s, Professor Lindquist expressed concern over the manner in which the Scholastic Aptitude Test (SAT), as it was then called, was being developed. Lindquist wanted the SAT to assess the skills and knowledge that students learn in high school and that are required for college-level study. The College Board, notwithstanding Lindquist's concerns, preferred to develop an aptitude test. As a result, Lindquist decided (with Ted McCarrel, also of the University of Iowa) to found ACT. Lindquist's goals in developing the ACT Assessment were that it would:

> *". . .test broad competencies, rather that rote memorization, and encourage students both to acquire knowledge and to learn how to use it creatively. It would consist in large part of exercises requiring students to interpret and to evaluate critically the same kinds of reading materials that they will have occasion to read and study in college, and that will require them to do the same kinds of complex reasoning and problem solving they will have to do later in and out of school."* (1)

The ACT Assessment includes a battery of high school curriculum-based achievement tests designed to assess students' critical reasoning and higher-order thinking skills in four core content areas: English, mathematics, reading, and science reasoning. Because the tests measure the skills and knowledge that students learn in high school and that they need to succeed in college, ACT scores provide straightforward, easily interpreted information about students' readiness to undertake college course work. We believe that when used properly, this information will promote the success of students in college.

In this brief, we present evidence on the following points:

- Because it is a curriculum-based achievement test, the ACT Assessment is an effective and appropriate component of both admissions and course placement decisions.
- Differential performance of groups of students on the ACT Assessment reflects real differences in what they have learned.
- ACT scores are as accurate, or more accurate, than high school grades for making admissions and course placement decisions.
- ACT scores provide objectivity and standardization, which are required for fairness to students. High school grades, although they predict academic performance in college, contain subjective components and are not standardized.

References to technical documents supporting these statements are given at the end of the brief. Additional information about the ACT Assessment will be distributed at the February 5, 1998 hearing of the Senate Select Committee on Higher Education Admissions and Outreach.

Policy Issues Related to Using the ACT Assessment for Admissions and Course Placement

The allocation of resources in postsecondary education is a policy issue that must be decided by the people of California. Admissions and course placement are affected directly by decisions on this policy issue. The tests in the ACT Assessment are achievement-oriented and curriculum-based: Their content is based solely on the academic knowledge and skills that are taught in typical high school college-preparatory programs, and that high school and college teachers say are required for success in the first year of college. For this reason, the ACT Assessment is an appropriate component of both admissions and course placement systems.

ACT scores help a student answer the question, *"What am I academically ready to learn next?"*. Whether the answer to this question results in a student's enrolling in a different institution, or in a different course at the same institution, depends on the institution's policies and the student's judgments and preferences. ACT's validity research demonstrates that ACT scores are highly effective both for admissions and for course placement. (2)

Success in college depends on nonacademic, as well as academic, characteristics. For this reason, ACT strongly recommends that institutions use other appropriate information in addition to test scores in making admission and course placement decisions. To assist students and institutions in this area, the ACT Assessment includes a Student Profile Section (SPS). The SPS gives students an opportunity to provide information on their extracurricular accomplishments; their special interests, talents, and needs; and their backgrounds.

ACT recommends that postsecondary institutions use high school grades jointly with test scores in making admissions and course placement decisions. Research has shown that high school grades depend on both academic achievement (what students have learned) and nonacademic factors (such as good behavior, class participation, turning in assignments on time, and effort). (3) Although high school grades are subjective, nonstandardized measures, they address important dimensions of student success other than academic achievement. Because these nonacademic factors are also important for success in college, using both ACT scores and high school grades is more effective than using either alone. (4)

Differential Performance on the ACT Assessment

The ACT Assessment is designed to measure what students can do with what they know in the content areas covered by the test. Items are written by high school and college teachers throughout the United States and are submitted to external panels of content experts and fairness experts for their review. The fairness review panel, for example, consists of consultants who have a history of active participation in promoting the concerns of racial/ethnic or gender groups within educational settings and beyond. Items are extensively pretested to ensure that they meet ACT's strict psychometric requirements. Test forms are assembled by staff members who have expertise in the subject matter tested and backgrounds in teaching. Sophisticated statistical analyses are used to flag any items that appear to perform differently for individuals who have the same overall skill level, but who are of different genders or racial/ethnic groups. Therefore, we are confident that any differences in performance among groups are related to real differences in skills, rather than to other factors.

Students' performance on the ACT Assessment and other achievement measures depends to a large extent on the courses they take and on the grades they earn in these courses. For example, our research has shown that students who take college preparatory core course work score, on average, about 3 scale score units higher than those who do not take core course work. (5)

Average differences in achievement are generally found among racial/ethnic groups. Some individuals believe that differences such as these reflect bias, or unfairness, in the measures used. There is substantial evidence that this belief is incorrect. These differences occur in all kinds of measures of academic achievement (e.g., ACT scores, National Assessment of Educational Progress scores, Stanford Achievement Test scores, high school GPA, high school graduation rates, college graduation rates). Furthermore, our research has shown that when differences in course work taken, grades earned, other background characteristics, and high school attended are taken into account, differences in ACT scores are not attributable to race/ethnicity.(6)

Socioeconomic indicators such as high school attended, parents' level of education, family configuration, family income, and the valuing of education in the home are all related to student achievement. All of these indicators reflect students' opportunities to receive a quality education. Unfortunately, all of these indicators are also related to the opportunities available to different racial/ethnic groups: African American, Mexican American, and Hispanic students are less likely to have access to a quality education than are Caucasian American or Asian American students. These inequities are reflected directly in their test scores---not because the tests are biased, but because of inequities in educational opportunity.

ACT's research has shown that achievement differences among racial/ethnic or income groups can be reduced if students are guided to take challenging course work in high school and obtain good grades, particularly if they aspire to degrees in higher education and/or professional careers. Moreover, early intervention and support of disadvantaged students will increase the likelihood of successful academic achievement both in primary/secondary school and in college. (7)

Average ACT score differences between gender groups are extremely small. Currently, average ACT Composite scores of gender groups differ by 0.06 standard deviation. (8) When high school course work, grades, high school attended, and other background characteristics are taken into account, differences in ACT scores are not attributable to gender. (9)

Predictive Validity of ACT Scores

ACT has conducted thousands of studies that demonstrate the predictive validity of ACT scores in making admissions and course placement decisions. These studies have taken place at all kinds of institutions, from open admissions to highly selective, at two-year and four-year institutions, and at institutions with students with markedly different demographic and background characteristics. The results of all these studies lead to the same conclusion: ACT scores are effective predictors of academic success in college.

For example, in a study of admissions decisions at eight traditional to highly selective institutions, ACT scores alone accurately predicted academic success for about three-fourths of the students. (Academic success was defined as completing the first year of college with a C or higher GPA.) By using ACT scores and high school GPA jointly, institutions could increase accuracy to 80%. (10)

Our course placement validity research shows that ACT scores also accurately predict high academic success in particular courses (i.e., completing a course with a B or higher grade). The percentage of accurate placement decisions varies from 67%-69% in English courses, from 72%-80% in mathematics courses, from 69%-71% in social studies courses, and from 67%-77% in science courses. (11)

A commonly-held opinion is that high school grades are more accurate predictors of academic success than ACT scores. There is substantial evidence indicating that, when stated in the context of the accuracy of admissions and course placement decisions, this belief is incorrect. In the admissions study of eight traditional to highly selective institutions referred to previously, ACT scores were as accurate as high school GPA for making admissions decisions. Our research on course placement indicates that ACT scores are, in fact, more accurate than high school grades for this purpose. Further, admissions and course placement decisions are more flexible when both ACT scores and high school grades are used jointly. This approach allows students to compensate for low high school grades with high test scores, and vice versa.

Another incorrect belief about ACT scores is that they underpredict the performance of different racial/ethnic groups in college, as compared to high school grades. In fact, our research has shown that the accuracy of first-year college grade predictions using ACT scores is very similar across racial/ethnic groups. Where differences do occur, using ACT scores provides an *advantage* for African American students relative to Caucasian American students. (12,13)

High School Grades

Postsecondary institutions typically use ACT Assessment test scores and high school grade point averages (GPAs) to predict students' academic performance in the first semester or in the first year. These predictions provide important information in making admissions and course placement decisions. A question often asked is: "Why are standardized test scores necessary; why not just use high school GPAs?" The answer is that test scores are objective measures of academic achievement, and are obtained from carefully standardized administration. High school grades, on the other hand, are nonstandardized subjective measures of academic achievement and of various noncognitive behaviors. Test scores provide a "common yardstick" for all students; high school grades, by their very nature, can not do this.

High school grades are in significant respects subjective: They are the judgments of individual teachers who have different grading standards and different values. For example, one teacher may reward effort as much or more than achievement, while another teacher may do the opposite. Likewise, grading practices vary tremendously across schools: An "A" in one school may be equivalent to a "C" in a different school.(14) Because it is based on high school grades, class rank is susceptible to the same subjectivity and nonstandardization. Therefore, while high school GPA and class rank are useful in predicting academic success in college, it would be unfair to students to base admissions and course placement decisions solely on them.

The ACT Assessment is a standardized test with a score scale that is constant across high schools and across time. For example, a score of 21 on the ACT Assessment represents the same level of achievement for a student in Sacramento in 1997 as for a student in San Diego in 1993. Therefore, it is possible to investigate how variable student grading practices are across schools, as compared to achievement on the ACT Assessment.

ACT recently completed a study of high school GPAs at 5,136 public high schools across five years. The purpose of the study was to determine whether the trend of ever-increasing high school GPAs was matched by a parallel trend of increasing ACT scores. Or, is there "grade inflation" in high school GPA, and if so, how severe is it? Another purpose of the study was to determine the degree to which grading standards differ across high schools.

The results revealed that while average high school grades steadily increased across the five year period, average performance on the ACT Assessment increased only slightly. Furthermore, high schools have widely differing grading standards: Students from the lowest performing schools who were in the "B+ to A" grade range had a median ACT Composite test score of 19, as compared to a median Composite score of 26 for students with "B+ to A" grades from the highest performing schools. (15)

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Chapter 2
The ACT Assessment Tests of Educational Development

Description of the ACT Assessment Tests

The ACT Assessment contains four multiple-choice tests—English, Mathematics, Reading, and Science Reasoning. These tests are designed to measure skills that are acquired in secondary education and that are most important for success in postsecondary education.

As was noted in chapter 1, the fundamental idea underlying the development and use of these tests is that the best way to determine how well prepared students are for further education is to measure as directly as possible the academic skills that students will need to perform college-level work. The content specifications describing the knowledge and skills to be measured by the ACT Assessment were determined through a detailed analysis of relevant information: First, the curriculum frameworks for grades seven through twelve were obtained for all states in the United States that had published such frameworks. Second, textbooks on state-approved lists for courses in grades seven through twelve were reviewed. Third, educators at the secondary and postsecondary levels were consulted on the importance of the knowledge and skills included in the reviewed frameworks and textbooks.

Because one of the primary purposes of the ACT Assessment is to assist in college admission decisions, in addition to taking the steps described above, ACT conducted a detailed survey to ensure the appropriateness of the content of the ACT Assessment tests for this particular use. College faculty members across the nation who were familiar with the academic skills required for successful college performance in language arts, mathematics, and science were surveyed. They were asked to rate numerous knowledge and skill areas on the basis of their importance to success in entry-level college courses and to indicate which of these areas students should be expected to master before entering the most common entry-level courses. They were also asked to identify the knowledge and skills whose mastery would qualify a student for advanced placement. A series of consultant panels were convened, at which the experts reached consensus regarding the important knowledge and skills in English/reading, mathematics, and science, given current and expected curricular trends.

Curriculum study is ongoing at ACT. Curricula in each content area (English, mathematics, reading, or science reasoning) in the ACT Assessment tests are reviewed on a periodic basis. ACT's analyses include reviews of tests, curriculum guides, and national standards; surveys of current instructional practice; and meetings with content experts.

The tests in the ACT Assessment are designed to be developmentally and conceptually linked to those of EXPLORE (grade eight) and PLAN (grade ten). To reflect that continuity, the names of the content area tests are the same across the three programs. Moreover, the programs are similar in their focus on thinking skills and in their common curriculum base. The test specifications for the ACT Assessment are consistent with, and should be seen as a logical extension of, the content and skills measured in the EXPLORE and PLAN programs.

The English Test

The ACT Assessment English Test is a 75-item, 45-minute test that measures understanding of the conventions of standard written English (punctuation, grammar and usage, and sentence structure) and of rhetorical skills (strategy, organization, and style). Spelling, vocabulary, and rote recall of rules of grammar are not tested. The test consists of five prose passages, each of which is accompanied by a sequence of multiple-choice test items. Different passage types are employed to provide a variety of rhetorical situations. Passages are chosen not only for their appropriateness in assessing writing skills, but also to reflect students' interests and experiences. Most items refer to underlined portions of the passage and offer several alternatives to the portion underlined. These items include "NO CHANGE" to the underlined portion in the passage as one of the possible responses. Some items are identified by a number or numbers in a box. These items ask about a section of the passage, or about the passage as a whole. The student must decide which choice is most appropriate in the context of the passage, or which choice best answers the question posed.

Three scores are reported for the English Test: a total test score based on all 75 items, a subscore in Usage/Mechanics based on 40 items, and a subscore in Rhetorical Skills based on 35 items.

The Mathematics Test

The ACT Assessment Mathematics Test is a 60-item, 60-minute test that is designed to assess the mathematical reasoning skills that students across the United States have typically acquired in courses taken up to the beginning of grade twelve. The test presents multiple-choice items that require students to use their mathematical reasoning skills to solve practical problems in mathematics. Knowledge of basic formulas and computational skills are assumed as background for the problems, but memorization of complex formulas and extensive computation are not required. The material covered on the test emphasizes the major content areas that are prerequisite to successful performance in entry-level courses in college mathematics. Six content areas are included: pre-algebra, elementary algebra, intermediate algebra, coordinate geometry, plane geometry, and trigonometry.

The items included in the Mathematics Test cover four cognitive levels: knowledge and skills, direct application, understanding concepts, and integrating conceptual understanding. "Knowledge and skills" items require the student to use one or more facts, definitions, formulas, or procedures to solve problems that are presented in purely mathematical terms. "Direct application" items require the student to use one or more facts, definitions, formulas, or procedures to solve straightforward problems set in real-world situations. "Understanding concepts" items test the student's depth of understanding of major concepts by requiring reasoning from a concept to reach an inference or a conclusion. "Integrating conceptual understanding" items test the student's ability to achieve an integrated understanding of two or more major concepts so as to solve nonroutine problems.

Calculators, although not required, have been permitted for use on the Mathematics Test since October 1996. Most four-function, scientific, or graphing calculators may be used on the Mathematics Test. A few restrictions do apply to the calculator used. These restrictions can be found in the annual *ACT Assessment User Handbook*.

Four scores are reported for the Mathematics Test: a total test score based on all 60 items, a subscore in Pre-Algebra/Elementary Algebra based on 24 items, a subscore in Intermediate Algebra/Coordinate Geometry based on 18 items, and a subscore in Plane Geometry/Trigonometry based on 18 items.

The Reading Test

The ACT Assessment Reading Test is a 40-item, 35-minute test that measures reading comprehension as a product of skill in referring and reasoning. That is, the test items require students to derive meaning from several texts by: (1) referring to what is explicitly stated and (2) reasoning to determine implicit meanings and to draw conclusions, comparisons, and generalizations. The test comprises four prose passages that are representative of the level and kinds of text commonly encountered in college freshman curricula; passages on topics in the social sciences, the natural sciences, prose fiction, and the humanities are included. Each passage is preceded by a heading that identifies what type of passage it is (e.g., "Prose Fiction"), names the author, and may include a brief note that helps in understanding the passage. Each passage is accompanied by a set of multiple-choice test items. These items do not test the rote recall of facts from outside the passage, isolated vocabulary questions, or rules of formal logic. Rather, the test focuses upon the complex of complementary and mutually supportive skills that readers must bring to bear in studying written materials across a range of subject areas.

Three scores are reported for the Reading Test: a total test score based on all 40 items, a subscore in Social Studies/Sciences reading skills (based on the 20 items in the social sciences and natural sciences sections of the test), and a subscore in Arts/Literature reading skills (based on the 20 items in the prose fiction and humanities sections of the test).

The Science Reasoning Test

The ACT Assessment Science Reasoning Test is a 40-item, 35-minute test that measures the interpretation, analysis, evaluation, reasoning, and problem-solving skills required in the natural sciences. The content of the Science Reasoning Test is drawn from biology, chemistry, physics, and the Earth/space sciences, all of which are represented in the test.

The test presents seven sets of scientific information, each followed by a number of multiple-choice test items. The scientific information is conveyed in one of three different formats: data representation (graphs, tables, and other schematic forms), research summaries (descriptions of several related experiments), or conflicting viewpoints (expressions of several related hypotheses or views that are inconsistent with one another).

The items included in the Science Reasoning Test cover three cognitive levels: understanding, analysis, and generalization. "Understanding" items require students to recognize and understand the basic features of, and concepts related to, the provided information. "Analysis" items require students to examine critically the relationships between the information provided and the conclusions drawn or hypotheses developed. "Generalization" items require students to generalize from given information to gain new information, draw conclusions, or make predictions.

One score is reported for the Science Reasoning Test: a total test score based on all 40 items.

Test Development Procedures

This section describes the procedures that are used in developing the four multiple-choice tests described above. The test development cycle required to produce each new form of the ACT Assessment tests takes as long as two and one-half years and involves several stages, beginning with a review of the test specifications.

Reviewing Test Specifications

Two types of test specifications are used in developing the ACT Assessment tests: content specifications and statistical specifications.

Content specifications. Content specifications for the ACT Assessment tests were developed through the curricular analysis discussed above. While care is taken to ensure that the basic structure of the ACT Assessment tests remains the same from year to year so that the scale scores are comparable, the specific characteristics of the

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of the cont[illegible] of the tests to the content specifications. At these panels, the characteristics of the items that fulfill the content specifications are also reviewed. While the general content of the test remains constant, the particular kinds of items in a specification category may change slightly. The basic structure of the content specifications for each of the ACT Assessment multiple-choice tests is provided in Tables 2.1 through 2.4.

Statistical specifications. Statistical specifications for the tests indicate the level of difficulty (proportion correct) and minimum acceptable level of discrimination (biserial correlation) of the test items to be used.

The tests are constructed with a target mean item difficulty of about 0.58 for the ACT Assessment national population and a range of difficulties from about 0.20 to 0.89. The distribution of item difficulties was selected so that the tests will effectively differentiate among students who vary widely in their level of achievement.

With respect to discrimination indices, items should have a biserial correlation of 0.20 or higher with test scores or subscores that measure comparable content. Thus, for example, performance on mathematics items should correlate 0.20 or higher with performance on the relevant Mathematics subscore.

Selection of Item Writers

Each year, ACT contracts with item writers to construct items for the ACT Assessment. The item writers are content specialists in the disciplines measured by the ACT Assessment tests. Most are actively engaged in teaching. They teach at various levels, from high school to university, and at a variety of institutions, from small private schools to large public institutions. ACT makes every attempt to include item writers who represent the diversity of the population of the United States with respect to ethnic background, gender, and geographic location.

Before being asked to write items for the ACT Assessment tests, potential item writers are required to submit a sample set of materials for review. An item writer's guide that is specific to the content area is provided to each item writer. The guides include examples of items and provide item writers with the test specifications and ACT's requirements for content and style. Included are specifications for fair portrayal of all groups of individuals, avoidance of subject matter that may be unfamiliar to members of certain groups within society, and nonsexist use of language.

Each sample set submitted by a potential item writer is evaluated by ACT Test Development staff. A decision concerning whether to contract with the item writer is made on the basis of that evaluation.

Each item writer under contract is given an assignment to produce a small number of multiple-choice items. The small size of the assignment ensures that a diversity of material will be produced and that the security of the testing program will be maintained, since any item writer will know only a small proportion of the items produced. Item writers work closely with ACT test specialists, who assist them in producing items of high quality that meet the test specifications.

Item Construction

The item writers must create items that are educationally important as well as psychometrically sound. A large number of items must be constructed because, even with good writers, many items fail to meet ACT's standards.

Each item writer submits a set of items, called a *unit*, in a given content area.

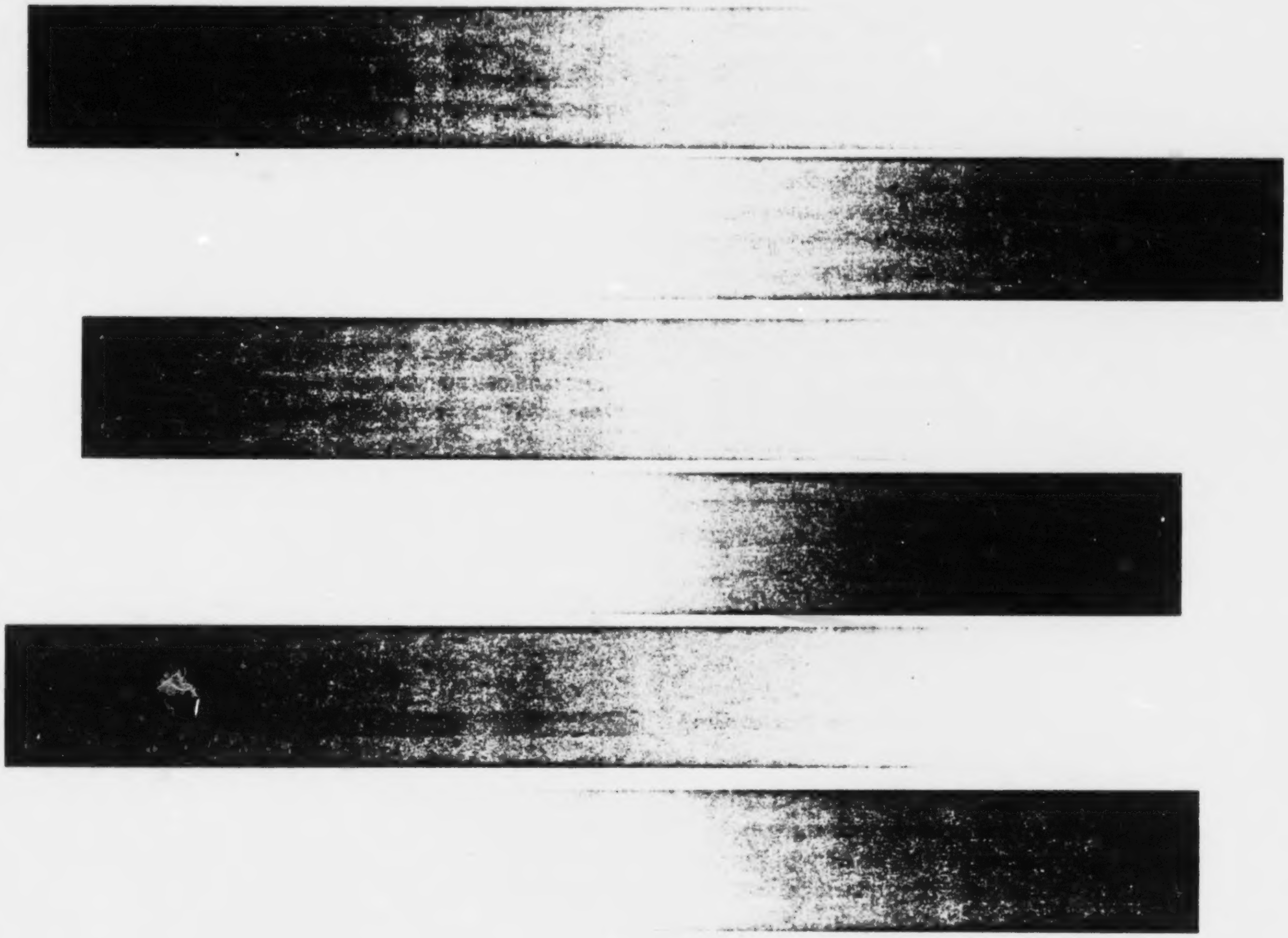
Review of Items

After a unit is accepted, it is edited to meet ACT's specifications for content accuracy, word count, item classification, item format, and language. During the editing process, all test materials are reviewed for fair portrayal and balanced representation of groups within society and for nonsexist use of language. The unit is reviewed several times by ACT staff to ensure that it meets all of ACT's standards.

Copies of each unit are then submitted to content and fairness experts for external reviews prior to the pretest administration of these units. The content review panel consists of high school teachers, curriculum specialists, and college and university faculty members. The content panel reviews the unit for content accuracy, educational importance, and grade-level appropriateness. The fairness review panel consists of experts in diverse educational areas who represent both genders and a variety of racial and ethnic backgrounds. The fairness panel reviews the unit to help ensure fairness to all examinees. Any comments on the units by the content consultants are discussed in a panel meeting with all the content consultants and ACT staff, and appropriate changes are made to the unit(s). All fairness consultants' comments are reviewed and discussed, and appropriate changes are made to the unit(s).

Standards for Transition:

Introducing Descriptions of the Skills and Knowledge Associated with PLAN and ACT Assessment Scores



August 1997

ACT

Information for Life's Transitions

Introduction

Over the past decade, educators at the local, state, and national levels have been developing educational content and performance standards to help guide instruction. American education, as a consequence, has a plentiful supply of standards that vary significantly in focus and purpose. Viewed together, they do not always clearly communicate what students are expected to know and to be able to do after completing high school. What is needed are standards that describe the skills and knowledge that are necessary for students' success after high school graduation. To meet this need, ACT has developed **Standards for Transition** that clearly communicate educational expectations for students as they prepare for a successful transition from high school to college and further training.

For years, PLAN (ACT's tenth-grade test) and the ACT Assessment have told us a lot about student achievement. The results from these two tests have answered questions about a student's readiness for college course work at specific institutions as well as how a student compares to other students who are considering enrollment in or are currently enrolled in a specific institution. The Standards for Transition complement this information by describing the types of skills and knowledge typically demonstrated by students who score in particular score ranges on PLAN and the ACT Assessment.

The content of the PLAN and ACT Assessment tests is determined by identifying the skills and knowledge that are both taught in high school **and** considered necessary for success in the first year of college. To determine this content, ACT conducts national surveys of teachers at both secondary and postsecondary levels; conducts panel meetings with teachers, curriculum coordinators, and other experts in the various content areas; and reviews curriculum guides and the most widely used textbooks in the content areas included in PLAN and the ACT Assessment. The content and skills measured in PLAN and the ACT Assessment, therefore, are those necessary for a successful transition to college. These expectations are substantiated by years of research that document the relationship between students' performance on the ACT Assessment and their success in college. Because the Standards for Transition are based on what is taught in high school that is important for success in college, they represent the content and skills most in demand from high school graduates.

What Are Standards for Transition?

The Standards for Transition for PLAN and the ACT Assessment are statements that describe what students who score in various score ranges are *likely* to know and to be able to do. They reflect the progression and complexity of skills in the four academic areas measured in PLAN and the ACT Assessment—English, mathematics, reading, and science reasoning—and are provided for five score ranges (16-19, 20-23, 24-27, 28-32, and 33-36) along a score scale that is common to both PLAN and the ACT Assessment.

Since these two testing programs are designed to measure students' progressive development of knowledge and skills in the same four academic areas through grades 10-12, the score descriptors pertain to scores obtained on either test. Students who score between 1 and 15 are most likely *beginning* to develop the knowledge and skills assessed in the 16-19 score range; scores in the 16-19 range represent a level of performance considered by most colleges to be a minimum to enter credit-bearing college courses.

How Were the Standards for Transition Developed?

ACT began development of the Standards for Transition by identifying the knowledge and skills students need in order to respond accurately to the test questions (items) in PLAN and the ACT Assessment. Numerous test items were assembled that had been answered correctly by 80% or more of the examinees within each score range. Content experts at ACT then developed lists of the skills and knowledge required to answer these items. The 80% criterion was chosen because it offers those who use the standards a high degree of confidence that the students scoring in a given score range will most likely be able to demonstrate the skills described in that range.

Teams of ACT content area experts then reviewed the knowledge and skills identified for each score range, reaching a consensus about the types of skills and knowledge demonstrated by students in each score range. The teams of content area experts also ensured that the standards as a whole represented a continuum of increasingly sophisticated skills and understandings across the score ranges.

As a content validity check, teams of content area experts from high schools and colleges across the United States were convened. The team members selected had extensive and current knowledge of their field, and many had achieved national recognition for their professional accomplishments. ACT engaged their expertise to gain an independent, authoritative review of how well the standards reflected the knowledge and skills needed to correctly respond to the test items in PLAN and the ACT Assessment. Each reviewer was asked to judge the consistency between each standard and the corresponding sample items for its score range and to judge the degree to which the standards represented a cumulative progression of increasingly sophisticated skills and understandings from the lowest score range to the highest score range. The reviewers judged the standards to be accurate reflections of the knowledge and skills measured by the tests and to represent a cumulative progression of skills and understandings.

How Should Standards for Transition Be Interpreted and Used?

Each standard describes what students who score in the designated range are likely to be able to do with what they know. Since the standards are cumulative, students typically can demonstrate most or all of the skills and knowledge in the score ranges preceding the range in which they scored. As students select the courses they plan to take in high school, they can use the standards to identify the types of skills and knowledge they will need to develop to be prepared for college or further training.

Because new PLAN and ACT Assessment test forms are developed each year and because no one test form measures all of the skills and knowledge included in any particular standard, the standards must be interpreted as skills and knowledge that *most* students who score in a particular score range are *likely* to be able to demonstrate. Since there were very few items that were answered correctly by 80% or more of the students who scored in the lowest score range, the standards in the lowest range should be interpreted cautiously.

It is important to recognize that PLAN and the ACT Assessment do not measure everything students have learned in high school nor does any particular form of these tests measure everything necessary for students to know to be successful in college or in further training. Both PLAN and the ACT Assessment include items from a vast domain of knowledge and skills that have been judged important for success in college and beyond. Thus, the Standards for Transition should be interpreted in a responsible way that will help students better understand what is required of them if they are to make a successful transition to college and to further training.

Standards for Transition for the English Tests

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

Score Range 16–19

Students can identify the basic purpose or role of a specified phrase or sentence. They are able to select the most logical place to add a sentence in a paragraph and delete illogical conjunctive adverbs and irrelevant, redundant, and wordy material. They revise expressions that violate the essay's tone and correct glaringly inappropriate shifts in verb tense or voice. Students are able to use punctuation or conjunctions to coordinate uncomplicated sentences and to avoid awkward-sounding fused sentences or sentence fragments. They solve such basic grammatical problems as whether to use an adverb or an adjective form; they know how to form comparative and superlative adjectives, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and when to use the contraction *it's*. They can provide appropriate punctuation in straightforward situations (e.g., items in a series) and can delete commas that disturb the sentence flow.

Score Range 20–23

Students can identify the main theme or topic of a straightforward piece of writing. They are able to add a sentence that introduces a simple paragraph and to decide the most logical place to add a sentence in an essay. They can use a conjunctive adverb or phrase to express a straightforward logical relationship. They can eliminate details that clearly violate the focus of the essay and revise material to make the writing less clumsy and more concise. They can use the word or phrase most appropriate in terms of the context and tone of a fairly straightforward essay. Students are able to recognize and to correct marked disturbances of sentence flow and structure (such as misplaced modifiers) and to determine the clearest and most logical conjunction to link clauses. They identify the past and past participle forms of irregular but commonly used verbs and identify idiomatically appropriate prepositions in terms of their context. They can ensure that a verb agrees with its subject when there is some text between the two, use commas to set off basic parenthetical phrases, and delete unnecessary commas when an incomplete or incorrect reading of the sentence suggests a pause that should be punctuated.

Score Range 24–27

Students can identify the focus of a simple essay, applying that knowledge to each paragraph's function and determining if an essay has met a specified goal. They are able to add a sentence to introduce or summarize the essay, accomplish a fairly straightforward and limited purpose, and provide a transition between paragraphs when the essay is fairly straightforward. They can delete a sentence that disturbs the development of the paragraph and a phrase that disrupts the flow of the sentence. They can use conjunctive adverbs or phrases to create subtle logical connections between sentences and can rearrange the sentences in a fairly uncomplicated paragraph. They can identify and correct pronouns that have vague referents and sophisticated-sounding language that is inconsistent with the style and tone of the essay. Students are able to revise to avoid faulty placement of phrases and coordination and subordination of clauses in sentences with subtle structural problems. They can maintain consistent verb tense and pronoun person in compound sentences or between sentences. They form present-perfect verbs by using *have* rather than *of*. They ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences. They use punctuation to set off complex parenthetical or adverbial phrases and delete unnecessary commas while recognizing inappropriate uses of colons and semicolons. They know how to use apostrophes to indicate simple possessive nouns.

Score Range 28–32

Students can identify the focus and purpose of a fairly involved essay, applying that knowledge to determine the rhetorical effect of a new or existing sentence, and the need to add supporting detail or delete plausible but irrelevant material. They are able to add a sentence to introduce or conclude a fairly complex paragraph, accomplish a subtle purpose such as emphasis, and express meaning through connotation. They can rearrange sentences in a complex paragraph; make sophisticated distinctions concerning the logical use of conjunctive adverbs or phrases; and correct vague, wordy, or clumsy writing containing sophisticated language. They correct redundant material that exists in separate clauses or sentences. They use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs. They maintain a consistent and logical use of verb tense and pronoun person; they avoid the pitfalls of hypercorrection, correctly using reflexive pronouns, the possessive pronouns *its* and *your*, and the relative pronoun *who* rather than *whom*. They ensure that a verb agrees with its subject in complex situations, and they can deal with multiple punctuation problems (e.g., compound sentences containing unnecessary commas and phrases that may or may not be parenthetical). They know how to use commas to set off a nonessential/nonrestrictive appositive or clause, a semicolon to indicate a relationship between closely related independent clauses, and an apostrophe to show possession, especially with irregular plural nouns.

Score Range 33–36

Students can determine whether a complex essay has accomplished a specific purpose. They consider the need for introductory sentences or transitions, basing their decisions on a complete understanding of both the logic and rhetorical effect of the paragraph and essay. They can add a phrase or sentence to accomplish a complex purpose, often expressed in terms of the main focus of the essay. They delete redundant material that involves subtle concepts or that is redundant in terms of the paragraph as a whole. These students work comfortably with long sentences and complex clausal relationships within sentences, avoiding weak conjunctions between independent clauses and maintaining parallel structure between clauses. They can ensure that a verb agrees with its subject when a phrase or clause between the two suggests a different number for the verb. They can provide idiomatically and contextually appropriate prepositions following verbs in situations involving sophisticated language or ideas. They know how to use a colon to introduce an example or an elaboration.

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Standards for Transition for the Mathematics Tests

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

Score Range 16–19

Students can solve routine one-step and two-step arithmetic problems, single-step percent problems, and straightforward average problems; recognize one-digit factors of a number; and identify a digit's place value. In probability, statistics, and data analysis, these students can perform computations on data from tables and graphs and determine the probability of the complement of an event. In algebra, they can combine two like terms (e.g., $2x + 5x$), substitute whole numbers for unknown quantities to evaluate expressions; and solve one-step equations having whole number or decimal answers. In coordinate geometry, they can locate points on the number line and in the first quadrant of the coordinate plane. In geometry, they can compute the perimeter of polygons when all side lengths are given and compute the area of rectangles when whole number dimensions are given.

Score Range 20–23

Students can solve routine two-step and three-step arithmetic problems, such as rate and proportion problems, multistep percent problems (e.g., tax added and percentage off), and average problems (e.g., computing with negative integers or using a given average); and exhibit knowledge of elementary number concepts including the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor. In probability, statistics, and data analysis, these students can translate from one representation of data to another (e.g., a bar graph to a circle graph); can determine the probability of a simple event; and exhibit knowledge of simple counting techniques. In algebra, they can manipulate basic algebraic expressions (e.g., substitute integers for unknown quantities, add and subtract simple algebraic expressions, multiply two binomials, and perform straightforward word-to-symbol translations); and solve most first-degree equations. In coordinate geometry, they comprehend the concept of length on the number line; can locate points in the coordinate plane; exhibit knowledge of vertical and horizontal lines and of their point of intersection; and exhibit knowledge of slope. In geometry, they exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 180° and 360°); can compute the area and perimeter of triangles and rectangles when the problems are simple; and can use geometric formulas when all necessary information is given.

Score Range 24–27

Students can solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) and work problems involving positive integer exponents, ordering fractions, and numerical factors. In probability, statistics, and data analysis, these students can manipulate data; use Venn diagrams in counting; and compute straightforward probabilities for common situations. In algebra, they can work with square and cube roots; determine when an expression is undefined; square numbers and expressions; factor simple quadratics (e.g., the difference of squares and perfect square trinomials); identify zeros or roots of simple quadratic equations; add, subtract, and multiply polynomials; write expressions or equations with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions); solve real-world problems using first-degree equations; and solve first-degree inequalities that do not require reversing the inequality sign. In coordinate geometry, they can identify the graph of a linear inequality and find the midpoint of a line segment on the number line; and in the coordinate plane, they can determine the slope of a line from points or equations; match linear graphs with their equations; and find the midpoint of a line segment. In geometry, they can use properties of isosceles triangles; recognize Pythagorean triples; use several angle properties to find an unknown angle measure; compute areas and circumferences of circles after identifying necessary information; compute areas of rectangles and triangles when an additional step is required; and compute the perimeter of simple composite geometric figures with unknown side lengths. Additionally, students (ACT Assessment only) can identify a particular trigonometric ratio when all necessary side lengths of a right triangle are given, as well as exhibit knowledge of the complex number i.

Score Range 28–32

Students can solve word problems containing several rates, proportions, or percentages. In probability, statistics, and data analysis, students can interpret and use information from tables and graphs including graphs in the coordinate plane; apply counting techniques; and apply the definition of probability. In algebra, they can apply the rules of exponents and number properties—often in a new context—to solve problems that involve even/odd numbers, positive/negative integers, and prime factorizations; manipulate equations; write expressions for common algebra settings; solve absolute value equations; solve linear inequalities that require reversing the inequality sign; and find solutions to systems of linear equations. In coordinate geometry, they can graph the solution set of linear inequalities on the number line; and in the coordinate plane, they can use the distance formula and use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point. In geometry, they can apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles; use the Pythagorean theorem; and use relationships involving area, perimeter, and volume of geometric figures to compute another measure. Additionally, students (ACT Assessment only) can recognize special characteristics of parabolas and circles from their equations (e.g., the vertex of a parabola and the center or radius of a circle) and can apply basic trigonometric ratios to solve right-triangle problems.

Score Range 33–36

Students can solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings). In probability, statistics, and data analysis, students can analyze and draw conclusions based on information from tables and graphs including graphs in the coordinate plane and exhibit knowledge of conditional and joint probability. In algebra, they can draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers; exhibit knowledge of logarithms and geometric sequences; can write an expression or equation that requires planning, solving, and/or manipulating to accurately model a situation; and can solve simple absolute value inequalities. In coordinate geometry, they can graph solutions to simple quadratic inequalities on the number line and identify characteristics of graphs in the coordinate plane based on a general equation such as $y = ax^2 + c$ or on a set of conditions. In geometry, they can draw conclusions based on a set of conditions; solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas (e.g., illustrating a scenario and then determining a solution path, and using algebraic representations for area); use scale factors to determine the magnitude of a size change; and compute the area of irregularly shaped regions that require planning or visualization. In trigonometry, they can use trigonometric concepts and basic identities to solve problems; exhibit knowledge of unit circle trigonometry; and can recognize graphs of basic trigonometric functions.

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Standards for Transition for the Reading Tests

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

Score Range 16–19

Students can exhibit a basic understanding of uncomplicated literary narratives. They are able to draw simple conclusions and make simple generalizations about the main points and characters; they are able to identify relationships between principal characters and to identify details that are important to a story. In uncomplicated informational passages, they are able to locate simple details at the sentence and paragraph level. These students are beginning to develop the reasoning skills that will enable them to answer more complex questions and comprehend more challenging passages.

Score Range 20–23

Students can grasp the important components of uncomplicated literary narratives and informational passages. They respond with increasing confidence to factual questions in informational passages. They can identify comparative relationships between ideas and characters, and can identify clearly stated cause-effect relationships found in uncomplicated texts. They are able to order simple sequences of events in uncomplicated literary narratives. They also draw simple conclusions using details that support the main idea of more challenging passages. They locate important details and are beginning to use context clues to define words in uncomplicated passages. These students demonstrate some reasoning skills, evident in their ability to make simple generalizations about characters and about the author's attitude toward his or her subject in uncomplicated passages.

Score Range 24–27

Students can exhibit a sound understanding of the important features of more challenging literary narratives and informational passages. They can infer the main idea of some paragraphs in more challenging passages, and they can discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages. They have a sound grasp of relationships between characters and ideas and can identify subtly stated cause-effect relationships in uncomplicated literary narratives and informational passages. They can use context clues to determine the appropriate meaning of multiple-meaning words in uncomplicated passages, and can order sequences of events in uncomplicated passages. They are expanding their use of reasoning skills: making generalizations about characters and situations from explicit language and summarizing basic events and ideas in more challenging passages.

Score Range 28–32

Students can read closely all but the most dense and complex passages. Among the skills these students exhibit are the ability to: infer the main idea of a passage or paragraph, use details from different sections of some complex informational passages to support a specific point or argument, and order sequences of events as they occur in more challenging literary and informational passages. They reveal an understanding of the dynamics of characters' relationships in more challenging literary narratives, and they are able to identify implied cause-effect relationships. These students can determine the appropriate meanings of words from richly figurative contexts. They demonstrate their ability to reason by: using information from different sections of more challenging passages to make generalizations about characters and situations, determining an author's tone or attitude toward his or her subject, and summarizing events and ideas in virtually any passage.

Score Range 33–36

Students can read closely and reason about even the most dense and complex passages. They can identify main ideas of passages and paragraphs, locate the important details and facts that support any idea or argument, and order sequences of events in complex passages. They make comparisons, conclusions, and generalizations that reveal a feeling for the subtleties in relationships between characters and ideas. They also have the ability to identify implied cause-effect relationships in complex passages, and can determine, even in situations where the language is quite figurative and the vocabulary is difficult, the meanings of context-dependent words or phrases in any passage. They read with critical understanding, evident in their ability to make complex generalizations about characters and situations by synthesizing information from different portions of the text. They are also able to identify and then generalize about an author's attitude or point of view toward his or her subject in virtually any passage. They can understand and generalize about portions of a complex literary narrative that use a range of literary devices.

Descriptions of PLAN and ACT Assessment Reading Passages

Uncomplicated Literary Narratives refers to excerpts from essays, short stories, and novels that tend to use simple language and structure, have a clear purpose and a familiar style, present straightforward interactions between characters, and employ only a limited number of literary devices such as metaphor, simile, or hyperbole.

More Challenging Literary Narratives refers to excerpts from essays, short stories, and novels that tend to make moderate use of figurative language, have a more intricate structure and messages conveyed with some subtlety, and may feature somewhat complex interactions between characters.

Complex Literary Narratives refers to excerpts from essays, short stories, and novels that tend to make generous use of ambiguous language and literary devices, feature complex and subtle interactions between characters, often contain challenging context-dependent vocabulary, and typically contain messages and/or meanings that are not explicit but are embedded in the passage.

Uncomplicated Informational Passages refers to materials that tend to contain a limited amount of data, address basic concepts using familiar language and conventional organizational patterns, have a clear purpose, and are written to be accessible.

More Challenging Informational Passages refers to materials that tend to present concepts that are not always stated explicitly and that are accompanied or illustrated by more—and more detailed—supporting data, include some difficult context-dependent words, and are written in a somewhat more demanding and less accessible style.

Complex Informational Passages refers to materials that tend to include a sizable amount of data, present difficult concepts that are embedded (not explicit) in the text, use demanding words and phrases whose meaning must be determined from context, and are likely to include intricate explanations of processes or events.

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Standards for Transition for the Science Reasoning Tests

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

Score Range 16–19	Students can select a single data point from a table and identify the basic features of a table or graph (e.g., headings, units of measurement, axis labels). They can also understand basic scientific terminology and can find pertinent information in a brief body of text. When working with data, they can compare two data points within one variable. They can identify a direct relationship between two variables.
Score Range 20–23	Students can select data from simple graphs (e.g., line graphs, bar graphs) and diagrams (e.g., carbon cycle, electrical circuits). They are able to identify pertinent data from a table with two variables and can also identify whether a relationship exists between two variables. When working with data, they can identify an inverse relationship between two variables. They can translate both written data and tabular data into graphic form. They understand basic lab procedures and can identify the control in an experiment or study.
Score Range 24–27	Students can select pertinent data from a graph or table with three or more variables and can interpolate between data points in a graph or table. They can identify a simple mathematical relationship between data and can identify a direct or inverse relationship between three or more variables. They understand moderately complex lab procedures and can determine the purpose behind parts of a basic experimental design. They can select a simple hypothesis, statement, prediction, generalization, or conclusion that is supported by a data set. They can identify strengths and weaknesses or similarities and differences in one or more experiments or viewpoints. They can also identify key issues in an argument or viewpoint and determine whether new information supports or weakens a viewpoint or hypothesis.
Score Range 28–32	Students can identify a complex mathematical relationship between data and can extrapolate from data points in a graph or table. They are able to compare and combine written information from the text with additional information provided (e.g., data in tables or figures). They understand complex lab procedures, can determine the hypothesis for an experiment, and can determine the purpose behind parts of a moderately complicated experimental design. When analyzing an experiment, these students can identify an alternate method for testing a hypothesis. These students can select a complex hypothesis, statement, prediction, generalization, or conclusion based on one data set. They can also select a set of data that support or contradict a hypothesis, statement, prediction, generalization, or conclusion. They can also predict the most likely or least likely result based on a given viewpoint.
Score Range 33–36	Students can compare and combine data from two data sets. They are also able to combine new, complex information with given data or other information. They understand precision and accuracy issues. When analyzing an experiment, these students can predict how modifying an experiment or study (adding a new trial or changing a variable) will affect the results. They can also identify new information that could be collected from a new experiment or by modifying an existing experiment. They can select a complex hypothesis, statement, prediction, generalization, or conclusion based on two or more data sets. They are able to determine whether given data or other information supports or contradicts a hypothesis or conclusion.

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The score descriptors for science reasoning are closely aligned with the abilities and understandings described in "Science as Inquiry" of the National Science Education Standards.

Rodger Bybee, Ph.D.
Center for Science, Mathematics, and Engineering Education
National Research Council
Washington, D.C.

The ACT score descriptors provide useful information that helps teachers, students, school administrators, and parents understand and interpret test scores.

Beverly Ann Chin, Ph.D.
Department of English
University of Montana, Missoula

The careful matching of student response work with scores on the ACT scale provides yet another way of helping students, counselors, and parents make careful and correct interpretations of student performance. Each step to make the meaning of the scores more transparent is a step to making the assessment a more helpful educational tool to those concerned with student learning.

John A. Dossey, Ph.D.
Mathematics Department
Illinois State University

The score descriptors are written in a language that is accessible to those who make the most use of the test—English teachers, counselors, and administrators.

One of the best features of the descriptors is that they are grounded in the standards that underlie the test and the items that comprise it.

P. David Pearson, Ph.D.
Michigan State University

The idea of providing descriptions of what students can do, rather than just numerical scores, has the potential to be helpful to teachers, parents, and students. The descriptions can allow teachers to improve achievement by targeting valuable outcomes. Of course, if students are aware of what they can and cannot do, it will be easier for them to try to learn.

Timothy Shanahan, Ph.D.
University of Illinois at Chicago

The ACT score descriptors for the PLAN and ACT Assessment tests are great! Students will now know what their test scores actually mean! Students simply find the score range for their test score and read descriptions of the skills and abilities they demonstrated on the test. If they want to know what students could do in the next higher score range, then they can read that score descriptor and use this to improve their skills. These descriptors have long been needed in the world of testing.

Dr. James Shymansky
Professor of Science Education
University of Iowa

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Concordance Between ACT Assessment and Recentered SAT I Sum Scores

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This article appears in **College and University**, (73)2, Fall 1997.
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Concordance Between ACT Assessment and Recentered SAT I Sum Scores

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Abstract

Concordant relationships were developed between ACT Assessment and SAT I scores of students who had taken both examinations between October 1994 and December 1996. The SAT I scores are scores that students either received (SAT I taken on or after April 1995) or would have received (SAT I taken prior to April 1995) on the recentered scale that was introduced in April of 1995. Prior studies have established concordances between the SAT I Verbal + Mathematical Sum (SAT I V+M) and ACT Composite. In this study, we also provide concordances between the SAT I V+M and ACT Sum, which equals the sum of scaled scores on the four ACT subscores: English, Mathematics, Reading, and Science Reasoning.

Introduction to the Study

Many colleges and universities accept either the ACT or SAT for admission and scholarship purposes. This presumes some method of establishing an equivalency between scores on the two assessments. The Associated Chief Admissions Officers of Public Universities (ACAOPU) had asked both the ACT Corporation and The College Board to undertake such a concordance study when the Enhanced ACT was introduced. We repeated this request on the introduction of the SAT I. Since at least a full year's experience of score takers was necessary before undertaking such studies, relationship between the SAT I and the Enhanced ACT assessment has just been completed.

As is the case with many questions that appear simple, in reality a rather complicated issue is being addressed in an attempt to equate scores from different tests. We applaud the cooperative efforts and the dedication of resources necessary to accomplish this study by ACT, The College Board, and ETS. None of us, as separate universities, could duplicate the size of the sample or level of analysis.

I wish to thank, beyond the authors, Fred H. Dietrich, Vice President for Guidance, Access and Assessment Services for The College Board, and Don Carstensen, Vice President of the Educational Service Division for ACT, for their assistance in initiating this project. Specifically, in addition to the authors, we appreciate the work of James Maxey, Assistant Vice President at ACT, Richard Sawyer, Assistant Vice President at ACT, Howard Everson, Vice President at The College Board, Richard Adams, Executive Director at ETS, Gary Marco, Executive Director at ETS, Brian O'Reilly, Director of SAT Program at The College Board, Nancy Feryok at ETS, and Stephen Laue at ETS.

Gary R. Engelgau
Coordinator of Concordance
Associated Chief Admissions Officers of Public Universities
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Purpose

Since the early sixties, admissions officers have been interested in ACT-SAT concordance tables. Earlier research was reported by Chase and Barritt (1966), Pugh and Sassenrath (1968), Astin (1971), Maxey and Lenning (1974), Marco and Abdel-Fattah (1991), and Houston and Sawyer (1991). Along with these published studies, many institutions have in the past conducted local research studies to examine the association between ACT Assessment and SAT I scores for helping local officials use either set of scores. A study by Maxey and Sawyer (1995) was conducted to establish guidelines for using either ACT Assessment or SAT I scores to determine scholarship eligibility standards for student athletes planning to enter college in the fall of 1995. However, this study was based partly on SAT records that had been original SAT scale scores converted to recentered SAT I scores, and because of time constraints, could not include data from students who tested in the twelfth grade.

Recentered SAT I Scores

Because of high interest in both examinations and their score relationships, the Associated Chief Admissions Officers of Public Universities (ACAOPU) requested ACT, ETS, and The College Board to develop updated concordance tables. In the current study, concordant relationships were developed between ACT Assessment and SAT I scores for students who had taken both examinations between October 1994 and December 1996. The SAT I scores are scores that students either received (SAT I taken on or after April 1995) or would have received (SAT I taken prior to April 1995) on the recentered scale that was introduced in April of 1995. In either case, these recentered scores were obtained directly from each student's adjusted number right score, rather than indirectly from their scores on the original scale.

ACT Composite and ACT Sum

Prior studies have established concordances between the SAT I Verbal + Mathematical Sum (SAT I V+M) and ACT Composite. In this study, we also provide concordances between the SAT I V+M and ACT Sum, which equals the sum of scaled scores on the four ACT subscores: English, Mathematics, Reading, and Science Reasoning. The

Table 1: Frequency and Cumulative Frequency for ACT Composite and Sum Scores

ACT Composite	Frequency	Cumulative Frequency	ACT Sum
36	24	103525	142-144
35	187	103501	138-141
34	611	103314	134-137
33	1345	102703	130-133
32	2126	101358	126-129
31	3059	99232	122-125
30	4081	96173	118-121
29	4662	92092	114-117
28	5342	87430	110-113
27	6109	82088	106-109
26	6709	75979	102-105
25	6862	69270	98-101
24	7346	62408	94-97
23	7491	55062	90-93
22	7558	47571	86-89
21	7269	40013	82-85
20	6980	32744	78-81
19	6359	25764	74-77
18	5544	19405	70-73
17	4699	13861	66-69
16	3429	9162	62-65
15	2579	5733	58-61
14	1676	3154	54-57
13	953	1478	50-53
12	375	525	46-49
11	107	150	42-45
10	34	43	38-41
9	3	9	35-37
8	5	6	31-33
6	1	1	24
23.15	**Mean**		92.10
4.86	**Standard Deviation**		19.39
6	**Minimum Score**		24
36	**Maximum Score**		144

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ACT Sum ranges from 4 to 144 by units of 1. The ACT Composite score ranges from 1 to 36 by units of 1, and is obtained by dividing ACT Sum by four. SAT I V+M ranges from 400 to 1600 by units of 10. SAT I V+M has 121 possible score-points, while ACT Composite has only 36. This difference in the number of scale points complicates the scaling process. Thus, it is easier to relate ACT Sum to SAT I V+M because the number of scale points is more comparable, 141 and 121 instead of 36 and 121. Presenting concordant scores between the ACT Sum and SAT I V+M is also relevant due to the decision by the NCAA to use the ACT Sum in determining eligibility for student athletes (Maxey and Sawyer 1995).

Note this paper does not examine relationships among subtests nor the invariance of these relationships across subgroups, such as clusters of institutions. Future studies are planned in these areas.

Description of Sample

Data Collection

In fall of 1996 ACT officials contacted representatives of 50 major public universities that tend to receive large numbers of ACT and SAT I score reports on the same students. In addition, efforts were made to collect ACT and SAT I scores from state agencies that had scores from both examinations on large numbers of students. ACT personnel were able to obtain test data on large numbers of students who had taken the ACT and SAT I from two large states with diverse student populations. In addition, scores were obtained on students who had sent both ACT and SAT I scores to 14 universities. Although the sample used for this study was not a random sample of all students who took both examinations, the size of the data file was over 100,000.[1]

The 14 universities and the two state education departments that participated in the study provided social security numbers and other selected information from the records of applicants for admission during the 1996-97 period. ACT Assessment and SAT I scores were obtained from the separate data files of the ACT Program and The College Board SAT Program by matching the social security numbers provided by the universities and states to the social security numbers on the data files. ACT Assessment scores came from tests administered from April 1995 to June 1996, SAT I scores from tests administered from October 1994 to December 1996. The ACT staff screened data and eliminated duplicate records. Records with one or more missing subtest scores were also eliminated, as were records containing scores from nonnational administrations of either test.

After the data were screened, a combined total of 105,544 applicants' records for ACT Assessment and SAT I scores were available from testing program files. The number of records per university ranged from 57 to 8,379. Only two universities provided data on fewer than 1,000 records.

Selection of Concordance Sample

One problem in conducting studies of this type is that students who take two college admissions tests tend to perform better on the test they take second. In addition, the magnitude of this enhanced performance tends to grow with increases in time between tests. The difference in performance may be partly the result of a growth over time in the skills tested or partly the result of familiarization with the testing situation. Whatever the reason, it can bias the results of a comparability study unless the two tests are balanced with respect to the time they were taken.

Students who took the tests more than 217 days apart were excluded from the sample (consistent with the rule employed by Marco and Abdel-Fattah 1991). Restricting the number of days between testings reduced the sample to 103,525. About 72 percent of these students took both the SAT I and ACT within five weeks of each other. However, 72 percent of the 103,525 took the SAT I before the ACT, while 28 percent took the SAT I after the ACT. On the average, the students in the concordance sample took the SAT I 15 days earlier than the ACT Assessment. This difference exceeded the 11 days reported by Marco and Abdel-Fattah.

Several approaches were considered to adjust for differences in time and order between ACT and SAT I administrations (see Appendix for details). Concordances based on the alternate approaches gave virtually the same results as concordances based on students who had 217 or fewer days between testing on the ACT and SAT I. Thus, all concordances presented in this report are based on the 103,525 students who took both tests within 217 days.

Concordance Sample Characteristics

Tables 1 and 2 contain distributions of scores on ACT Composite, ACT Sum, and SAT I V+M. As expected, the students in the concordance sample had higher average scores than the general ACT-tested or SAT I-tested populations.

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[1] *The states that provided data for this study were Florida and Texas. In addition, data were provided by University of California, Duke University, Ohio State University, Ball State University, University of Illinois, Northwestern University, University of South Carolina, Texas A&M University, University of Texas, Baylor University, Rice University, Prairie View A&M University, University of Maryland, and Stephen F. Austin University.*

The average ACT Composite for the concordance sample was 23.2, while the national average ACT Composite was 21.0 (ACT 1997). The average SAT I V+M score for the concordance sample was 1071, while the national average SAT I V+M was 1013 (The College Board 1996). The percentages of males (43 percent) and females (57 percent) in the sample were typical of the percentages in the ACT-tested population (44 percent and 56 percent, respectively) and, to a lesser extent, the SAT I-tested population (47 percent and 53 percent, respectively). In terms of ethnicity, the concordance sample appeared to be representative of the SAT I-tested population, though Hispanic Americans were slightly overrepresented in the sample. For the ACT-tested population, Whites were slightly underrepresented in the sample, while Asian Americans/Pacific Islanders, Puerto Ricans/Cubans/other Hispanics, and Mexican Americans/Chicanos were all slightly overrepresented in the sample.

Table 2: Frequency and Cumulative Frequency for SAT I V+M Scores

SAT I V+M	Frequency	Cumulative Frequency
1550-1600	279	103525
1500-1540	678	103246
1450-1490	1418	102568
1400-1440	2377	101150
1350-1390	3776	98773
1300-1340	5342	94997
1250-1290	6576	89655
1200-1240	8016	83079
1150-1190	9084	75063
1100-1140	9725	65979
1050-1090	9971	56254
1000-1040	9764	46283
950-990	8886	36519
900-940	7875	27633
850-890	6513	19758
800-840	4918	13245
750-790	3420	8327
700-740	2202	4907
650-690	1356	2705
600-640	697	1349
550-590	389	652
500-540	175	263
450-490	66	88
400-440	22	22
Mean	1071.4	
Standard Deviation	194.4	
Minimum Score	400	
Maximum Score	1600	

The relationship between ACT and SAT I scores was evaluated for students taking both tests between October 1994 and December 1996, and within 217 days of each other. The concordance sample consisted of student records from two states and 14 universities. The state sample sizes ranged from 12,280 to 23,555 matched records. The university sample sizes ranged from 49 to 8,354 matched records, and consisted of students who had sent both ACT and SAT I scores to the institution as part of the admissions process. The samples for states and for institutions were mutually exclusive, so that a student was represented in either the state sample or the institution sample, but not both. The total number of student scores used in the analyses was 103,525.

Scaling Procedure

The scaling procedure used in this study was the equipercentile method. A single-group design was used in which students took both forms to be scaled (see Kolen and Brennan 1995 for a detailed discussion of equipercentile equating and single-group designs). As the name implies, the equipercentile method sets equal the scores that have the same percentile ranks in the sample. For example, the score at the 90th percentile in the ACT Sum score distribution is set equal to the score at the 90th percentile in the SAT I V+M score distribution. A problem with the equipercentile method is that where the data are sparse, usually at the extremes of the score range, the percentile ranks observed in the sample are not good estimates of the percentile ranks that would be observed in another sample (or in the full population, if that were possible). One solution to this problem is to use linear scaling methods. This was not a viable option given the curvilinearity associated with different numbers of scale points.

Another solution to this problem is to smooth the distribution, removing the irregularities so as to produce a smoothed distribution that is a better estimate of the score distribution that might be observed in the full population. This type of smoothing is called pre-smoothing because the smoothing is done before the concordance table is computed. Another approach is to post-smooth irregularities in the concordance relationship after the scaling is completed. Kolen and Brennan (1995) describe both pre- and post-smoothing approaches.

We chose not to smooth at all for two reasons: First, the sample size was very large (103,525); and second, the data sparseness problems were in the tails of the distribution, especially the lower end of the ACT scale. Smoothings that work well where the vast majority of the data are do not necessarily extrapolate well outside the bounds of the observed data. We chose to truncate the concordance tables based on the unsmoothed data at 11 on ACT Composite, 44 on ACT Sum, and 500 on SAT I V+M. Fewer than 0.1 percent of the students had scores below these truncation points.

Results

The relationships between ACT and SAT I scores were summarized for two combinations of scores: ACT Composite with SAT I V+M, and ACT Sum with SAT I V+M. Both ACT Composite and ACT Sum correlate .92 with SAT I V+M.

The results of the equipercentile scaling procedure are summarized in Tables 3 to 5. Tables 3 and 4 give the ACT to SAT I concordances; Table 5 gives the SAT I to ACT concordances. Tables 3 and 4 should be used to convert ACT scores to SAT I scores. Table 5 can be used to convert SAT I V+ M scores to either ACT Sum or ACT Composite scores.

Table 3 gives concordant scores between ACT Composite and SAT I V+M. The left column contains ACT scores ranging from 11 to 36. The next column gives the concordant SAT I V+M scores corresponding to the respective ACT score. For example, an ACT Composite score of 27 has a concordant SAT I V+M score of 1220. Note that an ACT Composite score of 18 has a concordance of 870 on the SAT I. This finding means that, in this concordance sample, there were as many people below an 18 on the ACT Composite as there were below an 870 on the SAT I V+M.

Table 4 gives concordant scores between the ACT Sum and SAT I V+M. The maximum possible sum of ACT English, Mathematics, Reading, and Science Reasoning scores is 144; the minimum possible summed score is 4. In the table, concordant SAT I scores are given for ACT Sum scores ranging from 44 to 144, a total of 101 score points. This concordance allows concordant scores to be presented to a finer degree of gradation than the concordance between the ACT Composite and SAT I V+M scores (Table 3 has only 26 score points). The concordance between the ACT Composite and SAT I V+M in Table 3 has large gaps in concordant SAT I scores for consecutive ACT scores. Gaps in SAT I scores for consecutive ACT scores are much smaller for the concordance between the ACT Sum and SAT I V+M scores. For example, Table 3 shows that an ACT Composite of 26 corresponds to an SAT I V+M of 1180, while an ACT Composite of 27 corresponds to an SAT I

Table 3: Concordance Between ACT Composite and SAT I V+M Scores

ACT Composite	SAT I V+M	ACT Composite	SAT I V+M
36	1600	23	1070
35	1580	22	1030
34	1520	21	990
33	1470	20	950
32	1420	19	910
31	1380	18	870
30	1340	17	830
29	1300	16	780
28	1260	15	740
27	1220	14	680
26	1180	13	620
25	1140	12	560
24	1110	11	500

Note: This and subsequent concordance tables are based on data from 103,525 students from 14 universities and two states who took the ACT and SAT I between October 1994 and December 1996. These tables contain scores that were achieved by comparable proportions of students who took both tests within 217 days of each other. Because the ACT and the SAT I tests have different content, concordant scores should **not** be viewed as interchangeable measures of the same combination of skills and abilities.

Table 4: Concordance Between ACT Sum and SAT I V+M Scores

ACT Sum	SAT I V+M	ACT Sum	SAT I V+M	ACT Sum	SAT I V+M	ACT Sum	SAT I V+M	ACT Sum	SAT I V+M
144	1600	124	1390	104	1190	84	1000	64	790
143	1600	123	1380	103	1180	83	990	63	780
142	1600	122	1360	102	1170	82	980	62	770
141	1600	121	1350	101	1160	81	970	61	750
140	1590	120	1340	100	1150	80	960	60	740
139	1580	119	1330	99	1140	79	950	59	730
138	1560	118	1320	98	1130	78	940	58	710
137	1550	117	1310	97	1120	77	930	57	700
136	1530	116	1300	96	1110	76	920	56	690
135	1520	115	1290	95	1100	75	910	55	670
134	1510	114	1280	94	1090	74	900	54	660
133	1500	113	1270	93	1080	73	890	53	640
132	1480	112	1260	92	1070	72	880	52	630
131	1470	111	1250	91	1070	71	870	51	610
130	1460	110	1240	90	1060	70	860	50	590
129	1440	109	1230	89	1050	69	840	49	570
128	1430	108	1220	88	1040	68	830	48	560
127	1420	107	1210	87	1030	67	820	47	540
126	1410	106	1200	86	1020	66	810	46	520
125	1400	105	1200	85	1010	65	800	45	510
								44	500

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V+M of 1220. SAT I scores between 1180 and 1220 are not represented in the table. Table 4 shows, however, that SAT I V+M scores of 1180, 1190, 1200, 1210, and 1220 are all represented when related to ACT Sum.

Table 5 gives concordant scores between SAT I V+M and ACT Sum (and Composite). Note that the relationship between SAT I V+M and ACT Sum is inversely related to the relationship in Table 4. For example, in Table 4, an ACT Sum score of 100 corresponds to an SAT I V+M score of 1150; in Table 5, an SAT I V+M score of 1150 corresponds to an ACT Sum score of 100. However, not all possible SAT I V+M score points are represented in Table 4 and not all possible ACT Sum score points are represented in Table 5. A perfect one-to-one mapping of ACT Sum scores to SAT I V+M scores and back cannot occur because the ACT Sum and SAT I V+M have different numbers of possible score points, and because of rounding to whole numbers. Rounding effects also allow an ACT Composite score and its equivalent ACT Sum score to correspond to different SAT I V+M scores.[2]

Table 5 contains 111 unique SAT I V+M scale points (out of a possible of 121), ranging from 500 to 1600, in units of 10. Table 4 contains 101 unique ACT Sum scale points (out of a possible 141), ranging from 44 to 144, in units of 1. Table 3 contains 26 unique ACT Composite scale points (out of a possible 36), ranging from 11 to 36, in units of 1. These tables use 72 percent of the possible ACT scale points, and 92 percent of the possible SAT I scale points.

Discussion and Recommendations

This study was conducted to develop new concordance tables between recentered scores on the SAT I and scores on the ACT Assessment. With the cooperation of several institutions and two states, a large database was obtained for establishing these new concordances between the sum and composite scores for both the ACT Assessment and SAT I. Even a large database like this has its limitations.

The results are limited in that the matched sample is not representative of the entire ACT and SAT I populations, nor can it be because they are different populations. The students contained in the sample performed considerably above the average on the ACT and the SAT I. With a lower scoring sample, or one more similar in ability to the ACT-tested or SAT I-tested populations, the observed concordances might not be the same. Because not all students choose to take both the ACT and the SAT I, the relationships between ACT and SAT I test scores might be different for the population on whom data were collected and the population to whom the results of the study will be applied.

The ACT Assessment and the SAT I are not parallel in content, and their scores are not interchangeable. Although the correlation of .92 between ACT Sum (or Composite) and SAT I V+M is very high, it is important to realize that, despite this high correlation, different concordances could be obtained with different data.

In particular, users of the ACT Assessment and SAT I who have sufficiently large samples of test takers with both ACT and SAT I scores may wish to investigate the feasibility of developing their own concordance tables. It is important to investigate how similar institution-specific concordances are across different institutions and states. Studies of the invariance of concordance tables across institutions should be guided by characteristics by which institutions differ. Preliminary results indicate some variability.

Many institutions might not be able to develop the SAT I and ACT concordance tables superior to the tables developed here, whether because of inadequate samples of students who take both tests or because of the lack of appropriate data analysis procedures. Potential users of the concordance tables developed in this study are advised to make sure the characteristics and test scores of their test takers who need ACT or SAT I scores are not greatly different from those of the concordance sample. Once appropriateness has been determined, these concordance tables should be useful in relating SAT I and ACT scores to make admissions, scholarship, and similar types of decisions.

Concordance tables provide useful comparable decision points at a group level. Selection rules based on concordant ACT and SAT I scores will permit the same proportions of students to be selected, but the degree to which the same students are selected depends on the correlation between the two tests, which for the composite or summed scores is very high in this concordance sample. Because of a

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[2] *Equipercentile scalings are complicated by rounding effects, in particular, and discreteness of the data, in general. Discreteness refers to the fact that scores are reported in discrete whole numbers. As a consequence, ACT scores that appear like they should correspond to the same SAT I V+M score may not. For example, an ACT Composite score of 22 corresponds to an SAT I V+M score of 1030 in Table 3, while Table 5 shows that an ACT Sum of 88 (4 times 22) corresponds to an SAT I V+M score of 1040. This apparent discrepancy is due to the fact that the equipercentile definition of equivalence presumes that discrete integer scores are rounded versions of continuous scores. For example, a 22 equals all possible "scores" between 21.5 and 22.5. In addition, traditional equipercentile procedures assume that scores within an interval, such as 21.5 to 22.5, are distributed uniformly. This inconsistency between the discreteness of the data and the model continuity assumption leads to anomalies, such as those noted for 22 and 28. This discreteness problem is greater for short scales such as the ACT Composite.*

Table 5: Concordance Between SAT I V+M and ACT Sum Scores (and ACT Composite)

SAT I V+M	ACT Sum	ACT Composite	SAT I V+M	ACT Sum	ACT Composite	SAT I V+M	ACT Sum	ACT Composite	SAT I V+M	ACT Sum	ACT Composite	SAT I V+M	ACT Sum	ACT Composite
1600	141-144	35-36	1380	123	31	1160	101	25	940	78	20	720	58	15
1590	140	35	1370	123	31	1150	100	25	930	77	19	710	58	15
1580	139	35	1360	122	31	1140	99	25	920	76	19	700	57	14
1570	138	35	1350	121	30	1130	98	25	910	75	19	690	56	14
1560	138	35	1340	120	30	1120	97	24	900	74	19	680	56	14
1550	137	34	1330	119	30	1110	96	24	890	73	18	670	55	14
1540	137	34	1320	118	30	1100	95	24	880	72	18	660	54	14
1530	136	34	1310	117	29	1090	94	24	870	71	18	650	53	13
1520	135	34	1300	116	29	1080	93	23	860	70	18	640	53	13
1510	134	34	1290	115	29	1070	91	23	850	69	17	630	52	13
1500	133	33	1280	114	29	1060	90	23	840	69	17	620	52	13
1490	132	33	1270	113	28	1050	89	22	830	68	17	610	51	13
1480	132	33	1260	112	28	1040	88	22	820	67	17	600	50	13
1470	131	33	1250	111	28	1030	87	22	810	66	17	590	50	13
1460	130	33	1240	110	28	1020	86	22	800	65	16	580	49	12
1450	129	32	1230	109	27	1010	85	21	790	64	16	570	49	12
1440	129	32	1220	108	27	1000	84	21	780	63	16	560	48	12
1430	128	32	1210	107	27	990	83	21	770	62	16	550	47	12
1420	127	32	1200	105	26	980	82	21	760	62	16	540	47	12
1410	126	32	1190	104	26	970	81	20	750	61	15	530	46	12
1400	125	31	1180	103	26	960	80	20	740	60	15	520	46	12
1390	124	31	1170	102	26	950	79	20	730	59	15	510	45	11
												500	44	11

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high degree of correlation between the ACT Sum (or Composite) and the SAT I IV+M, the concordances in Tables 3-5 provide reasonable estimates of scores, with the exception of high and low scores on either test. However, it should be noted that although the two tests are highly related, they are not exchangeable measures because of different content and statistical specifications. Estimates of an individual student's score on either test using concordance tables will likely differ to some degree from what the student's score would be if he or she were to actually take the test. A regression-based approach, which explicitly takes the strength of the relationship between tests into account, is an alternative.

Finally, a number of significant questions remain to be answered. Chief among these questions is that concerning the subtests in each assessment. ACT has four subtests (Reading, Science Reasoning, English, and Mathematics), and SAT I has a Verbal score and a Math score. It remains to be seen how well the subscores on ACT and the Verbal and Math scores on SAT I relate to each other. The best way to link subtests across these two tests needs to examined. The interpretations attached to these linkages need to be explicitly stated. Further research is required to answer these questions and other related issues. ❖

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Appendix

Marco and Abdel-Fattah (1991) attempted to remove the bias that might result from the SAT being taken earlier, on average, than the ACT Assessment via a weighting system. The weighting system used in that study weighted the students who took the ACT first in such a way as to make the total number of days between testings for this group equal to the total number of days between testings for the group that took the SAT first. Applying these particular weights reduced the mean difference in test dates in their data from 11 days to 0.

An alternative approach to the weightings used by Marco and Abdel-Fattah (1991) is to truncate the full sample by direct selection on the number of testing days between SAT I and ACT administrations. The number-of-testing-days variable can be computed directly from the administration dates for SAT I and ACT. Here, positive numbers mean the ACT was taken before the SAT I; negative numbers mean the opposite, SAT I preceded ACT. As noted earlier 72 percent, nearly three in four, took the SAT I before they took the ACT. The degree of truncation needed would be enough to ensure that the average number of days between ACT and SAT I administrations would equal 0, instead of the -15 seen in the full sample.

In terms of the Marco and Abdel-Fattah weighting approach, truncation implicitly gives a weight of 0 to any scores excluded, and a weight of 1 to scores that are included in the analyses. Unlike the Marco and Abdel-Fattah weights, which gave the greatest weights to the most extreme time differences in the group that took the ACT before the SAT I, the approach employed here completely eliminated the most extreme differences among the test takers who took the SAT I first.

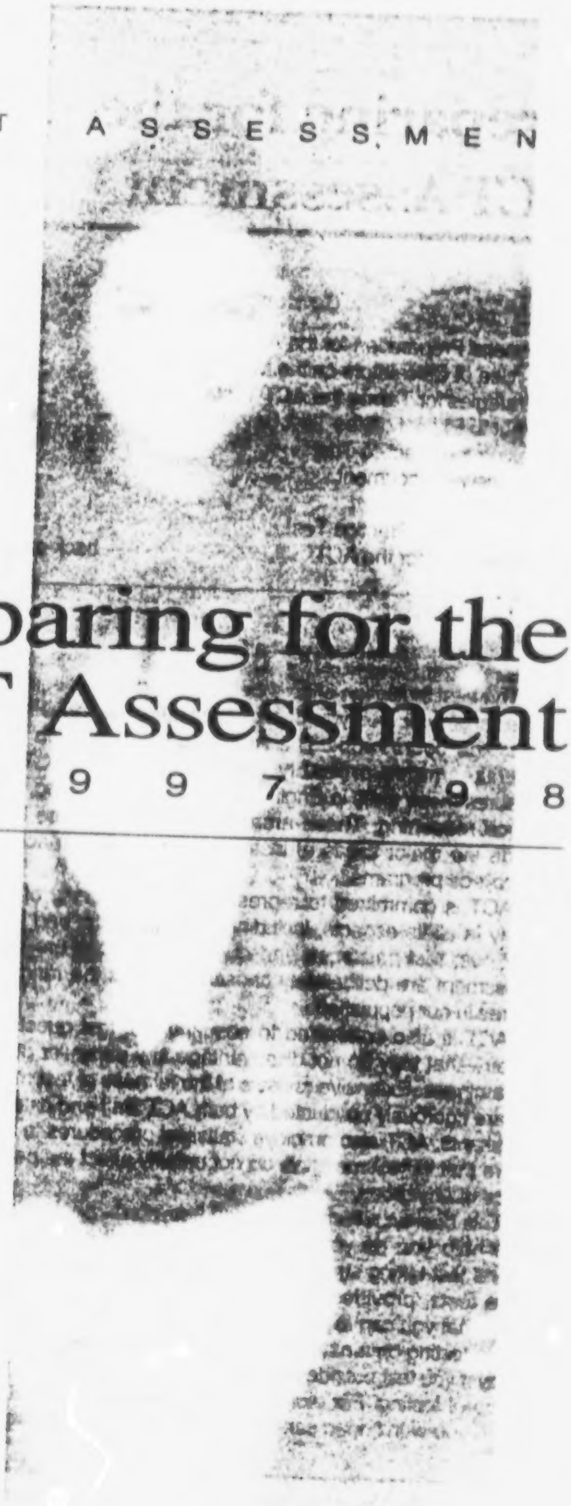
Truncation resulted in a loss of 10,729 (10.4 percent) cases, all of whom took the SAT I more than 70 days before they took the ACT. This truncation resulted in an average difference in testing time of 0, as desired. The full sample (N=103,525) had means of 1071 on SAT I V+M, and 23.15 on ACT Composite. In contrast, the truncated sample had means of 1077 and 23.24, respectively. Truncation produced a slightly more able subgroup.

The truncation approach is an extreme treatment of the data for the purpose of adjusting for differences in time between ACT and SAT I administrations. As such it would be expected to produce a larger score effect than those produced by other plausible weights that could have been used. As a drastic form of sampling, truncation provides an extreme case for studying the effects on scaling of sampling with respect to differences in time between SAT I and ACT testings.

To determine whether the bias due to the time differential was large enough to require differential weighting on time between administrations, ACT Sum and SAT I V+M were scaled to each other in both the full sample and the truncated sample. For the scaling of SAT I V+M to ACT Sum, we found that reported score concordances for the two types of scaling were identical or differed by a single point, the result of rounding. For example, an SAT I V+M score of 1080 converted to a rounded score of 93 (from 92.56) in the full sample, and to a 92 (from 92.41) in the truncated sample. Since 92.56 and 92.41 differ by only .15, they are virtually the same despite the fact that they round to different integers.

For the scaling of ACT Sum to SAT I V+M, we obtained similar results, virtually identical conversions under the two types of samples, full and truncated. For most of the ACT Sum scores, truncation had no observable effect on the relationship between ACT Sum and SAT I V+M. When there was an observable effect, it was due to rounding. Hence, we concluded that the differences between the truncated and full sample analyses were small enough to ignore. We performed all subsequent analyses on the full sample, which was called the concordance sample throughout this report.

ACT ASSESSMENT



Preparing for the ACT Assessment

1997–98

ACT

Information for Life's Transitions

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Preparing for the ACT Assessment

Contents

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A Message to Students

The best indication of how well you will do in college is a measure of how well you can perform the skills necessary for college coursework. The ACT Assessment—you and your classmates probably call it simply "the ACT"—measures these skills in English, mathematics, reading, and science reasoning. These areas are tested because they include the major areas of instruction in most high school and college programs.

ACT is committed to representing the diversity of our society in all its aspects, including race, ethnicity, and gender. Thus, test passages and questions used in the ACT Assessment are deliberately chosen to reflect the range of cultures in our population.

ACT is also committed to ensuring that test questions are fair—that they do not disadvantage any particular group of examinees. Extensive reviews of the fairness of test materials are rigorously conducted by both ACT staff and external consultants. ACT also employs statistical procedures to help ensure that its test materials do not unfairly affect the performance of any group.

This booklet, which is provided free of charge, is intended to help you do your best on the ACT. It summarizes general test-taking strategies, describes the content of each of the tests, provides specific tips for each, and lets you know what you can expect on the test day. Most procedures refer to testing on a national test date. Procedures may differ slightly if you test outside the United States or through another type of testing. For example, if you test at a national test center, you won't need scratch paper because each page of the Mathematics Test will provide a blank column that you can use for scratch work. Otherwise, you will be provided with scratch paper. Included in this booklet are a practice test—"retired" ACT Assessment questions that were administered to students on a national test date—and a sample answer document and scoring instructions.

Read this booklet carefully and take the practice test well before the test day so you will be familiar with the ACT, what it measures, and the strategies you can use to do your best on it.

1

General Preparation for the ACT

Choosing a Test Date

Before you choose a test date, consider the application deadlines of the colleges and scholarship agencies that are of interest to you. It will take four to seven weeks after a test date for ACT to mail your score report to you and to your college or agency choices.

Many college and scholarship agencies recommend that students take the ACT during the spring semester of their junior year. By this time, students typically have completed most of the coursework covered by the ACT. There are a number of advantages in taking the ACT during the spring of your junior year:

- You will receive test scores and other information that will help you plan your senior year in high school.
- Many colleges begin contacting prospective students during the summer before the senior year.
- If you do not score as well as you believe you can, there will be opportunities to retake the ACT in the early summer or fall of your senior year and still have the new information available in time to meet admission and scholarship deadlines.

NOTE: You cannot plan on receiving your scores from one test date in time to register for the next.

ACT endorses the *Code of Fair Testing Practices in Education*, a statement of guidelines for those who develop, administer, and use educational tests and data. The *Code* sets forth criteria for fairness in four areas: developing and selecting appropriate tests, interpreting test scores, striving for fairness, and informing test takers. ACT is committed to ensuring that each of its testing programs upholds the *Code's* standards for appropriate test development practice and use.

A copy of the full *Code* may be obtained free of charge from ACT Publications, P.O. Box 168, Iowa City, IA 52243-0168, 319/337-1429.

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General Test-Taking Strategies

The ACT consists of tests in four areas: English, Mathematics, Reading, and Science Reasoning. Each of these tests contains multiple-choice questions that offer either four or five answer choices from which you are to choose the correct, or best, answer. The following suggestions apply to tests in all four areas:

Pace yourself.

The time limits set for each ACT test give nearly everyone enough time to finish all the questions. However, because the English, Reading, and Science Reasoning Tests contain a considerable amount of text, it is important to pace yourself so you will not spend too much time on one passage. Similarly, try not to spend too much time puzzling over an answer to a specific problem in the Mathematics Test. Go on to the other questions and come back if there is time.

Your supervisor will announce when there are five minutes remaining on each test.

Read the directions for each test carefully.

Before you begin taking one of the ACT tests, read the directions carefully. The English, Reading, and Science Reasoning Tests ask for the "best" answer. Do not respond as soon as you identify a correct answer. Read and consider all of the answer choices and choose the answer that *best* responds to the question.

The Mathematics Test asks for the "correct" answer. Read each question carefully to make sure you understand the type of answer required. Then, you may want to work out the answer you feel is correct and look for it among the choices given. If your answer is not among the choices provided, reread the question and consider all of the answer choices.

Read each question carefully.

It is important that you understand what each question asks. Some questions will require you to go through several steps to find the correct or best answer, while others can be answered more quickly.

Answer the easy questions first.

The best strategy for taking the ACT is to answer the easy questions and skip the questions you find difficult. After answering all of the easy questions, go back and answer the more difficult questions.

Use logic in more difficult questions.

When you return to the more difficult questions, try to use logic to eliminate incorrect answers to a question. Compare the answer choices to each other and note how they differ. Such differences may provide clues as to what the question requires. Eliminate as many incorrect answers as you can, then make an educated guess from the remaining answers.

Answer every question.

Your score on the ACT tests will be based on the number of questions that you answer correctly; **there is no penalty for guessing.** Thus, you should answer every question within the time allowed for each test, even if you have to guess. The supervisor will announce when there are five minutes remaining on each test.

Review your work.

If there is time left after you have answered every question in a test, go back and check your work in that test. Check to be sure that you marked only one answer to each question. You will not be allowed to go back to any other test or mark answers to a test after time has been called on that test.

Be precise in marking your answer document.

Be sure that you fill in the correct ovals and rectangles on your answer document. Check to be sure that the number of the line of ovals on your answer document is the same as the number of the question you are answering. Position your answer document next to your test booklet so you can mark your answers quickly and completely.

Erase completely.

If you want to change an answer on your answer document, be sure to erase the unintended mark completely.

Preparing for the Test Day

Although what you know will determine how well you do on the ACT, your attitudes, emotions, and physical state may also influence your performance. The following tips will help you do your best:

- Be confident in your ability to do well on the ACT. You can do well!
- Be prepared to work hard.
- Know what to expect on the test day. Familiarize yourself with the information in this booklet and in the registration booklet. Take the practice test and review your responses so you will feel comfortable about the approaching test day.
- Prepare well in advance for the test. Do not leave preparation to the last minute.
- Get plenty of rest the night before the test so you will be in good physical condition for taking it.
- Bring the following items with you to the test center:

1. Your test center admission ticket (if you are testing on a national test date).

2. Acceptable identification. Your admission ticket is **not** identification. See details on page 5. If you do not present acceptable identification at the time of check-in, you will not be admitted to test.

3. Three sharpened soft-lead (No. 2) pencils with erasers. Do **not** bring highlight pens or any other writing instruments; you will not be allowed to use them.

4. A wristwatch so that you can pace yourself during the test. Do **not** bring a watch that has an alarm function. You will not be allowed to set an alarm because it will disturb other students. An announcement will be made by the supervisor when five minutes remain on each test.

5. A calculator for use on the Mathematics Test, if you wish to use one. (See shaded section on the next page.)

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For students testing on national test dates:

- Check your admission ticket for the location of the test center to which you have been assigned. If you are unfamiliar with the location, do a practice run to see how to get there and how much time you will need to arrive on time.
- Plan to arrive by the time stated on your admission ticket. If you arrive earlier than 7:45 A.M., you will probably have to wait outside until the testing personnel have completed their arrangements.
- Be prepared for testing to start after all examinees present at 8:00 A.M. have been checked in and assigned seats.
- Dress comfortably. To conserve energy, your test center may be considerably warmer or cooler on weekends than during the week. Please dress in such a way that you will be comfortable in a variety of temperatures.

Standby Testing

ACT strongly recommends that you register by the regular or late deadline for the test date you desire. Only properly registered students are guaranteed a seat and test booklet at the assigned test center.

If you miss the late registration deadline but have a pressing need to test on the upcoming test date, you can try to test as a "standby" examinee. Testing as a standby is more costly, and you are **not** guaranteed a seat or test booklet.

If you decide to take your chance as a standby, be sure to follow the instructions for standby testing in the registration booklet exactly. You must bring a completed registration folder and fee payment with you to the test center, along with acceptable identification. Standby examinees who have these required items with them will be admitted *only* after all registered students have been seated.

Test center supervisors will not know until after all properly registered examinees have been seated on the test day if space and materials are available, so it is not useful to contact supervisors prior to the test date; they cannot guarantee you will be admitted.

Use of Calculators on the Mathematics Test

ACT allows the use of certain kinds of calculators on the Mathematics Test, but you are not required to use a calculator. All problems on the Mathematics Test can be solved without using a calculator.

- It is your decision whether or not to use a calculator on the Mathematics Test. If you regularly use a calculator in class or when doing your homework, it makes sense to use it on the Mathematics Test. On the other hand, if you aren't comfortable using a calculator, you may not wish to use one on the Mathematics Test.
- If you decide to bring a calculator, we encourage you to use the type of calculator that you are used to at school or at home—as long as it is not one of the kinds of calculators **not** permitted. It is unlikely that using a more powerful calculator that you are not familiar with will give you an advantage over the kind you normally use.
- For test security reasons, to avoid disturbances in the testing room, and to ensure fairness for all test takers, the following types of calculators are **not** permitted:

  pocket organizers
  handheld or laptop computers
  electronic writing pads or pen-input devices
  models with a QWERTY (typewriter) keypad
  (Calculators with letters on the keys are permitted as long as the keys are not arranged in QWERTY format.)

- The following types of calculators are permitted only if they are used as noted:

  models with paper tapes – The paper must be removed.
  models that make noise – The sound feature must be turned off.
  models that can communicate (transfer data or information) *wirelessly with other calculators* – The wireless transfer capability must be disabled by placing opaque material (such as masking tape) over the infrared data port.
  models that have a power cord – No power cords are permitted. The electrical cord must be removed.

- You may use any four-function, scientific, or graphing calculator on the Mathematics Test, except as specified above.
- If you plan to use a calculator on the Mathematics Test, you are responsible for bringing an acceptable one to the test center. Sharing calculators during the Mathematics Test is **not** permitted, and the test center supervisor will **not** lend you a calculator.
- You are also responsible for making sure your calculator works properly. If your calculator uses batteries, make certain that the batteries are strong enough to last throughout the testing session. You may bring a spare calculator and extra batteries with you to the testing session in case one malfunctions or the batteries die. Test center personnel **do not** have extra batteries or calculators available.
- Calculators may be used **only** on the Mathematics Test.
- If you bring a calculator, the test supervisor will make sure that (1) you are using an acceptable type of calculator, (2) you use your backup calculator only if your primary calculator fails, (3) you do **not** share your calculator with any other test taker, (4) you do **not** use your calculator's memory to store any test materials, and (5) you use your calculator **only** on the Mathematics Test.
- If your calculator has large characters (one-inch high or larger) or a raised display, the test supervisor may assign you to a seat where no other test taker can see your calculator.

Identification Required at Time of Check-In

Acceptable identification must be presented at the time of check-in or you will **not** be admitted to test. This requirement is designed to protect **you.** Present ONE of the following:

1. **Current Official Photo ID:** Current official photo ID recently issued by your school, employer, or city/state/federal government (for example, driver's license or current passport) on which BOTH your name and current photograph appear. Only photo ID issued by one of these listed institutions is acceptable.

2. **Recent Published Photo:** Recognizable *individual* photograph of you in a recent school yearbook or other publication (such as a newspaper) with your first and last names in the caption. If you bring a newspaper clipping, the testing staff may keep it to send to ACT.

3. **School Letter of Identification:** If you do not have acceptable photo ID, ask your counselor or other school official (who may **not** be a relative) for a letter of identification. Your counselor's letter must be **on school letterhead** and include your name and *full physical description* or a recognizable recent photograph with school seal or school official's signature across a portion of the photo. (If school letterhead is computer-generated, a school seal is **required.**) A photocopy of a transcript may be used **only** if it includes a recent photo and is signed as described below.

   You must sign the letter **in ink in the presence of** the counselor or school official (who may **not** be a relative), and that official must also **personally** sign the letter in **ink.** Printed, stamped, or photocopied signatures are not acceptable. You will be required to sign the letter again on the test day in the presence of testing staff, and they will keep the letter to send to ACT.

4. **Notarized Statement with Photo:** If you do not have acceptable photo ID *and* you do not attend a high school, contact a notary public (who may **not** be a relative) for a statement of identification. Attach a current photograph of yourself to a sworn statement. You must sign this statement in the presence of the notary public, and the notary public must notarize the statement with the notary seal or stamp affixed to a portion of the photo. You will be asked to sign the statement again at the test center, and the testing staff will keep it to send to ACT.

If you do not present one of the forms of ID in the above list, you will **not** be admitted to the test center. The following forms of ID are **unacceptable:** photo ID issued by a business for promotional purposes (for example, amusement parks); membership card (for example, health clubs); birth certificate; Social Security card; credit card, with or without photo. Your parents or classmates may **not** present identification on your behalf or "vouch for" you.

Plan ahead and be certain you will have acceptable ID with you at check-in on the test day. (Traffic tickets or police reports documenting a stolen wallet, even though they may include a physical description and signature, are **not** acceptable.) If you have any questions about acceptable ID, call ACT Test Administration (319/337-1510) *before* the test day.

2

Strategies for Taking the ACT Tests

The ACT measures the knowledge, understanding, and skills that you have acquired throughout your education. Although the sum total of this knowledge cannot easily be changed, your performance in a specific subject matter area can be affected by adequate preparation, especially if it has been some time since you have taken a course in that area.

There are three strategies that can help you to prepare yourself for the content included in the ACT:

Familiarize yourself with the content of the ACT tests.

Review the information about the tests that is provided on the following pages. Note which content areas make up a large proportion of the tests and which do not. The specific topics included in each content area are examples of possible topics; they do not include all of the possibilities.

Refresh your knowledge and skills in the content areas.

Review those content areas you have studied but do not have freshly in your mind. Spend your time refreshing your knowledge in the content areas that make up large portions of the tests.

Identify the content areas you have not studied.

If unfamiliar content areas make up major portions of the tests, consider taking coursework to help you gain knowledge in these areas before you take the ACT. Because the ACT measures knowledge acquired over a period of time, it is unlikely that a "cram" course covering material that is unfamiliar to you will help you improve your scores. Longer-term survey courses in the subject matter will be most helpful to you, because they aim to improve your knowledge in the area.

ACT English Test

The English Test is a 75-question, 45-minute test that measures your understanding of the conventions of standard written English (punctuation, grammar and usage, and sentence structure) and of rhetorical skills (strategy, organization, and style). Spelling, vocabulary, and rote recall of rules of grammar are not tested. The test consists of five prose passages, each of which is accompanied by a sequence of multiple-choice test questions. Different passage types are employed to provide a variety of rhetorical situations. Passages are chosen not only for their appropriateness in assessing writing skills but also to reflect students' interests and experiences. Most questions refer to underlined portions of the passage and offer several alternatives to the portion underlined. These questions include "NO CHANGE" to the passage as one of the possible responses. Some questions are identified by a number or numbers in a box. These questions ask about a section of the passage or about the passage as a whole. You must decide which choice is most appropriate in the context of the passage, or which choice best answers the question posed.

Three scores are reported for the ACT English Test: a total test score based on all 75 questions, a subscore in Usage/Mechanics based on 40 questions, and a subscore in Rhetorical Skills based on 35 questions.

Tips for Taking the ACT English Test

Pace yourself.

The ACT English Test contains 75 questions to be completed in 45 minutes. If you spend 1–1½ minutes skimming through each passage before responding to the questions, then you will have about 30 seconds to answer each question. If possible, spend less time on each question and use the remaining time allowed for this test to review your work and return to the questions on this test that were most difficult for you.

Be aware of the writing style used in the passages.

The five passages cover a variety of topics and are written in a variety of styles. It is important that you take into account the writing style used in each passage when you respond to the questions. In responding to a question, be sure to understand the context of the question. It is best to skim through the whole passage quickly or, at a minimum, read the sentences immediately before and after the one containing an underlined portion. Read more of the passage if the writer's view still is unclear.

Examine the underlined portions of the passage.

Before responding to a question with an underlined portion, carefully examine what is underlined in the text. Consider the elements of writing that are included in each underlined portion. Some questions will ask you to base your decision on some specific element of writing, such as the tone or emphasis the text should convey. The answer choices for each question will contain changes in one or more of these elements of writing.

Be aware of questions with no underlined portions.

You will be asked some questions about a section of the passage or about the passage as a whole, in light of a given rhetorical situation. Questions of this type are identified by a question number in a box located at the appropriate point in the passage. Questions asking global questions about the entire passage are placed at the end of the passage and introduced by a horizontal box enclosing the following instruction: "Questions ___ and ___ ask about the preceding passage as a whole."

Note the differences in the answer choices.

Many of the questions in the test will involve more than one aspect of writing. Examine each answer choice and how it differs from the others. Be careful not to select an answer that corrects one error but causes a different error.

Determine the best answer.

Two approaches can be taken to determine the best answer to a question with an underlined portion. In the first approach, you can reread the sentence or sentences, substituting each of the possible answer choices for the underlined portion to determine the best choice. Or, as a second approach, you can decide how the underlined portion might best be phrased in standard written English or in terms of the particular question posed. If you think the underlined portion is the best possible phrasing as is, you should select the "NO CHANGE" answer. If not, you should check to see whether your phrasing is one of the other answer choices. If you do not find your phrasing, you should choose the best of the answers presented. For questions cued by a number in a box, you must decide which choice is most appropriate in terms of the question posed or the stated rhetorical situation.

Reread the sentence, using your selected answer.

Once you have selected the answer you feel is best for questions with underlined portions, reread the corresponding sentence(s) of the passage, substituting your selected answer for the underlined portion of the text to make sure it is the best answer within the context of the passage.

Content Covered by the ACT English Test

Six elements of effective writing are included in the English Test: punctuation, grammar, sentence structure, strategy, organization, and style. The questions covering punctuation, grammar, and sentence structure make up the Usage/Mechanics subscore. The questions covering strategy, organization, and style make up the Rhetorical Skills subscore. A brief description and the approximate percentage of the test devoted to each element of effective writing are given below.

Usage/Mechanics

Punctuation (13%). Questions in this category test your knowledge of the conventions of internal and end-of-sentence punctuation, with emphasis on the relationship of punctuation to meaning (for example, avoiding ambiguity, indicating appositives).

Basic Grammar and Usage (16%). Questions in this category test your understanding of agreement between subject and verb, between pronoun and antecedent, and between modifiers and the word modified; verb formation; pronoun case; formation of comparative and superlative adjectives and adverbs; and idiomatic usage (for example, choosing appropriate function words).

Sentence Structure (24%). Questions in this category test your understanding of relationships between and among clauses, placement of modifiers, and shifts in construction.

Rhetorical Skills

Strategy (16%). Questions in this category test how well you choose expressions appropriate to an essay's audience and purpose; judge the effect of adding, revising, or deleting supporting material; and choose effective opening, transitional, and closing sentences.

Organization (15%). Questions in this category test how well you organize ideas and judge the relevance of statements in context (making decisions about order, coherence, and unity).

Style (16%). Questions in this category test how well you select precise and appropriate words and images, maintain the level of style and tone in an essay, manage sentence elements for rhetorical effectiveness, and avoid ambiguous pronoun references, cliches, wordiness, and redundancy.

ACT Mathematics Test

The ACT Mathematics Test is a 60-question, 60-minute test designed to assess the mathematical skills students have typically acquired in courses taken up to the beginning of grade 12. The test presents multiple-choice questions that require you to use reasoning skills to solve practical problems in mathematics. Knowledge of basic formulas and computational skills are assumed as background for the problems, but complex formulas and extensive computation are not required. The material covered on the test emphasizes the major content areas that are prerequisites to successful performance in entry-level courses in college mathematics.

Use of calculators is permitted on the Mathematics Test. See page 4 for details.

Four scores are reported for the ACT Mathematics Test: a total test score based on all 60 questions, a subscore in Pre-Algebra/Elementary Algebra based on 24 questions, a subscore in Intermediate Algebra/Coordinate Geometry based on 18 questions, and a subscore in Plane Geometry/Trigonometry based on 18 questions.

Tips for Taking the ACT Mathematics Test

Pace yourself.

The ACT Mathematics Test contains 60 questions to be completed in 60 minutes. The maximum estimated time that should be spent on each question is 1 minute. If possible, spend less time on each question and use the remaining time allowed for this test to review your work and return to the questions on this test that were most difficult for you.

If you use a calculator, use it wisely.

Remember, all of the mathematics problems can be solved without using a calculator. In fact, some of the problems are best done without a calculator. Use good judgment in deciding when, and when not, to use a calculator. For example, for some problems you may wish to do scratch work to clarify your thoughts on the question before you begin using a calculator to do computations. For many problems, you may not want to use a calculator.

Solve the problem.

The best way to respond to each question in this test is to work out your solution to the problem. Writing space for scratch work usually is available in the test booklet, or you will be given scratch paper to use. You may wish to glance over the answer choices after reading the questions. However, working backwards from the answer choices provided takes a lot of time and seldom is effective.

Locate your solution among the answer choices.

Once you have solved the problem, look for your answer among the choices. If your answer is not included among the choices, carefully reread the problem to see whether you missed important information. Pay careful attention to the question being asked. If an equation is to be selected, check to see whether the equation you think is best can be transformed into one of the answer choices provided.

Make sure you answer the question.

The solutions to many questions in the test will involve several steps. Make sure your answer includes all of the necessary steps. Frequently, questions include answer choices that are based on incomplete solutions.

Make sure your answer is reasonable.

Sometimes an error in computation will result in an answer that is not practically possible for the situation described. Always think about your answer to determine whether it is reasonable.

Check your work.

You may arrive at an incorrect solution by making common errors in the problem-solving process. Thus, if there is time available before the end of the Mathematics Test, it is important that you reread the questions and check your answers to make sure they are correct.

Content Covered by the ACT Mathematics Test

Six content areas are included in the Mathematics Test: pre-algebra, elementary algebra, intermediate algebra, coordinate geometry, plane geometry, and trigonometry. The questions covering pre-algebra and elementary algebra make up the Pre-Algebra/Elementary Algebra subscore. The questions covering intermediate algebra and coordinate geometry make up the Intermediate Algebra/Coordinate Geometry subscore. And the Plane Geometry/Trigonometry subscore is based on the questions covering plane geometry and trigonometry. A brief description and the approximate percentage of the test devoted to each content area are given below.

Pre-Algebra/Elementary Algebra

Pre-Algebra (23%). Questions in this content area are based on basic operations using whole numbers, decimals, fractions, and integers; place value; square roots and approximations; the concept of exponents; scientific notation; factors; ratio, proportion, and percent; linear equations in one variable; absolute value and ordering numbers by value; elementary counting techniques and simple probability; data collection, representation, and interpretation; and understanding simple descriptive statistics.

Elementary Algebra (17%). Questions in this content area are based on properties of exponents and square roots, evaluation of algebraic expressions through substitution, using variables to express functional relationships, understanding algebraic operations, and the solution of quadratic equations by factoring.

Intermediate Algebra/Coordinate Geometry

Intermediate Algebra (15%). Questions in this content area are based on an understanding of the quadratic formula, rational and radical expressions, absolute value equations and inequalities, sequences and patterns, systems of equations, quadratic inequalities, functions, modeling, matrices, roots of polynomials, and complex numbers.

Coordinate Geometry (15%). Questions in this content area are based on graphing and the relations between equations and graphs, including points, lines, polynomials, circles, and other curves; graphing inequalities; slope; parallel and perpendicular lines; distance; midpoints; and conics.

Plane Geometry/Trigonometry

Plane Geometry (23%). Questions in this content area are based on the properties and relations of plane figures, including angles and relations among perpendicular and parallel lines; properties of circles, triangles, rectangles, parallelograms, and trapezoids; transformations; the concept of proof and proof techniques; volume; and applications of geometry to three dimensions.

Trigonometry (7%). Questions in this content area are based on understanding trigonometric relations in right triangles; values and properties of trigonometric functions; graphing trigonometric functions; modeling using trigonometric functions; use of trigonometric identities; and solving trigonometric equations.

ACT Reading Test

The Reading Test is a 40-question, 35-minute test that measures your reading comprehension as a product of your skill in referring and reasoning. That is, the test questions require students to derive meaning from several texts by (1) referring to what is explicitly stated and (2) reasoning to determine implicit meanings and to draw conclusions, comparisons, and generalizations. The test comprises four prose passages that are representative of the level and kinds of text commonly encountered in college freshman curricula; passages on topics in the social studies, the natural sciences, prose fiction, and the humanities are included. Each passage is preceded by a heading that identifies what type of passage it is (for example, "Prose Fiction"), names the author, and may include a brief note that helps in understanding the passage. Each passage is accompanied by a set of multiple-choice test questions. These questions do not test the rote recall of facts from outside the passage, isolated vocabulary items, or rules of formal logic. Rather, the test focuses upon the complex of complementary and mutually supportive skills that readers must bring to bear in studying written materials across a range of subject areas.

Three scores are reported for the ACT Reading Test: a total test score based on all 40 questions, a subscore in Social Studies/Sciences reading skills (based on the 20 questions in the social studies and natural sciences sections of the test), and a subscore in Arts/Literature reading skills (based on the 20 questions in the prose fiction and humanities sections of the test).

Tips for Taking the ACT Reading Test

Pace yourself.

The ACT Reading Test contains 40 questions to be completed in 35 minutes. If you spend 2–3 minutes reading each passage, then you will have about 35–41 seconds to answer each question. If possible, spend less time on the passages and the questions and use the remaining time allowed for this test to review your work and return to the questions on this test that were most difficult for you.

Read the passage carefully.

Before you begin answering a question, read the entire passage thoroughly. It is important that you read every sentence rather than skim the text. Be conscious of relationships between or among ideas. You may want to make notes about important ideas in the passage either in the test booklet or on the scratch paper provided.

Refer to the passage when answering the questions.

Answers to some of the questions will be found by referring to what is explicitly stated in the text. Other questions will require you to determine implicit meanings and to draw conclusions, comparisons, and generalizations. Refer to the passage before you answer any question.

Content Covered by the ACT Reading Test

The Reading Test is based on four types of reading selections: the social studies, the natural sciences, prose fiction, and the humanities. A subscore in Social Studies/Sciences reading skills is based on the questions in the social studies and the natural sciences sections of the test, and a subscore in Arts/Literature reading skills is based on the questions in the prose fiction and humanities sections of the test. A brief description and the approximate percentage of the test devoted to each type of reading selection are given below.

Social Studies (25%). Questions in this category are based on passages in the content areas of anthropology, archaeology, business, economics, education, geography, history, political science, psychology, and sociology.

Natural Sciences (25%). Questions in this category are based on passages in the content areas of anatomy, astronomy, biology, botany, chemistry, ecology, geology, medicine, meteorology, microbiology, natural history, physiology, physics, technology, and zoology.

Prose Fiction (25%). Questions in this category are based on intact short stories or excerpts from short stories or novels.

Humanities (25%). Questions in this category are based on passages in the content areas of architecture, art, dance, ethics, film, language, literary criticism, music, philosophy, radio, television, and theater.

ACT Science Reasoning Test

The Science Reasoning Test is a 40-question, 35-minute test that measures the interpretation, analysis, evaluation, reasoning, and problem-solving skills required in the natural sciences.

The test presents seven sets of scientific information, each followed by a number of multiple-choice test questions. The scientific information is conveyed in one of three different formats: data representation (graphs, tables, and other schematic forms), research summaries (descriptions of several related experiments), or conflicting viewpoints (expressions of several related hypotheses or views that are inconsistent with one another). The questions require you to recognize and understand the basic features of, and concepts related to, the provided information; to examine critically the relationship between the information provided and the conclusions drawn or hypotheses developed; and to generalize from given information to gain new information, draw conclusions, or make predictions. The use of calculators is **not** permitted on the Science Reasoning Test.

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One score is reported for the ACT Science Reasoning Test: a total test score based on all 40 questions.

Tips for Taking the ACT Science Reasoning Test

Pace yourself.

The ACT Science Reasoning Test contains 40 questions to be completed in 35 minutes. If you spend about 2 minutes reading each passage, then you will have about 30 seconds to answer each question. If possible, spend less time on the passages and the questions and use the remaining time allowed for this test to review your work and return to the questions on this test that were most difficult for you.

Read the passage carefully.

Before you begin answering a question, read the scientific material provided. It is important that you read the entire text and examine any tables, graphs, or figures. You may want to make notes about important ideas in the information provided, either in the test booklet or on the scratch paper provided. Some of the information sets will describe experiments. You should consider the experimental design, including the controls and variables, because questions are likely to address this component of scientific research.

Note different viewpoints in passages.

Some material will present conflicting points of view, and the questions will ask you to distinguish among the various viewpoints. It may be helpful for you to make notes summarizing each viewpoint, either next to that section in your test booklet or on the scratch paper provided. For questions that ask you to compare viewpoints, these notes will help you answer more quickly.

Content Covered by the ACT Science Reasoning Test

The content of the Science Reasoning Test includes biology, chemistry, physics, and the earth/space sciences (for example, geology, astronomy, and meteorology). Advanced knowledge in these subjects is not required, but background knowledge acquired in general, introductory science courses may be needed to answer some of the questions. The test emphasizes scientific reasoning skills rather than recall of scientific content, skill in mathematics, or reading ability. The scientific information is conveyed in one of three different formats.

Data Representation (38%). This format presents graphic and tabular material similar to that found in science journals and texts. The questions associated with this format measure skills such as graph reading, interpretation of scatter plots, and interpretation of information presented in tables.

Research Summaries (45%). This format provides descriptions of one or more related experiments. The questions focus upon the design of experiments and the interpretation of experimental results.

Conflicting Viewpoints (17%). This format presents expressions of several hypotheses or views that, being based on differing premises or on incomplete data, are inconsistent with one another. The questions focus upon the understanding, analysis, and comparison of alternative viewpoints or hypotheses.

3

What to Expect on the Test Day

Identification Required

You are to report to the test center by the time stated on your admission ticket, normally 8:00 A.M. If your admission ticket does not list a specific room, test supervisory personnel or posted signs will direct you to the testing room. At check-in, you will be required to show *BOTH* your admission ticket and acceptable ID. See ID requirements on page 5 of this booklet.

Dos and Don'ts

In the testing room, the supervisor or proctor will direct you to a seat. If you need a left-handed desk, tell your supervisor as you enter. Only pencils, a calculator (for the Mathematics Test only), and your admission ticket will be allowed on your desk. Scratch paper (unless provided by the test supervisor), notes, slide rules, and foreign language or other dictionaries are not allowed in the testing room. You will be required to put all other personal belongings away. You may not eat, use tobacco in any form, or drink in the testing room. You must abide by the rules of the institution where you are testing. Do not leave the testing room after you have been admitted.

Relax just before the tests. Take a few deep breaths, tense and relax your muscles, and think about pleasant things.

Test Preliminaries

The testing session will begin as soon as all examinees present at 8:00 A.M. are checked in. Listen carefully to all directions read by the supervisor. Ask questions if you do not understand what you are to do. It is very important that you *follow all directions* carefully. For instance, if you do not copy the information from your admission ticket onto your answer document accurately, or fill in the correct ovals, your answer document will not match your registration record—and the reporting of your scores will take three to five weeks longer than usual to process.

After you have completed side 1 of the answer document, your admission ticket will be collected and you will receive a test booklet. You will be told to read the directions printed on the cover, then asked to write the booklet number and test form at the top of side 2 of the answer document. It is extremely important that you fill in the correct ovals for your test booklet number and for the test form you are taking because these determine which answer key will be used to score your answer document. The supervisor will then tell you when to open your test booklet and begin work.

Taking the Tests

As you are working, keep your eyes on your own test booklet and answer document. If you have a question, raise your hand, but do not look around.

It is important that you understand what is considered prohibited behavior on the ACT Assessment. If you are involved in **any** of the actions listed below, you will have to return your test materials and leave the test center. Prohibited behavior includes:

- attempting to fill in any ovals after time is called on any test (You must put down your pencil when time is called.)
- looking at another examinee's test booklet or answer document
- giving or receiving assistance
- looking back at a previous test on which time has been called
- looking ahead at another test
- using any notes or reference books (e.g., dictionary)
- sharing a calculator with another examinee
- using a calculator to share or exchange information
- using a calculator on any test other than the Mathematics Test
- attempting to store test materials, including test questions or answers, in your calculator's memory to remove them from the testing room

All of the above activities are prohibited. If you are observed engaging in any prohibited behavior, your answer document will **not** be scored and you will be dismissed from the test center.

If you finish before time is called, review your work on the test you have just finished. Do **not** return to an earlier test and do not work ahead. If you are satisfied with your responses, place your answer document inside your test booklet and close it. Sit quietly until the supervisor gives you additional instructions.

You will have a short break after the first two tests. Do not leave the building during the break period because some buildings have automatic locking doors, and you may be locked out. You must ask permission to leave the room during testing to go to the restroom; you will not be given time to make up for the time you miss.

On certain test dates, ACT administers test questions for developmental purposes. Responses to such questions are not counted toward your scores.

At the conclusion of the session, you will be asked to read and sign a statement certifying truthful identification of yourself. You will be required to sit quietly until you are dismissed. After all answer documents and test booklets have been collected and counted, the supervisor will dismiss you.

Special Situations

If you become ill and have to leave the center before finishing the ACT, tell the supervisor whether you want to have your answer document scored. If you do not want your answer document scored, ask the supervisor to return your admission ticket. You may reregister for a later test date in the current testing year (through June).

If you decide *after* you have finished the ACT that you do not want it scored, tell the supervisor *before* you leave the test center. You need not give a reason. However, once you have broken the seal on your test booklet, you cannot request a refund or reregistration for a later test date.

Test Information Release

On certain national test dates, you may obtain (for an additional fee) a copy of the test questions, a copy of your answers, a list of correct answers, and scoring instructions. This service is not available for all dates or for other types of testing, so if you want it, be sure to check the registration guide, *Registering for the ACT Assessment*, and register for a test date on which it is available. The information will be mailed 8 to 12 weeks **after** the test date.

4

Taking the Practice Test

The practice test, which is provided to help you become familiar with the ACT, will be most helpful if you take it under conditions that are as similar as possible to those you will experience on the actual test day.

The following tips will help you make the most of the practice test.

- The four ACT tests require a total of 2 hours and 55 minutes. Try to take them in one sitting, without interruption.
- Sit at a desk with good lighting. You will need three No. 2 pencils with erasers. You may not use highlight pens. Remove all books and other aids from your desk. On the test day, you will not be allowed to use references or notes. If you test at a national test center, you won't need scratch paper because each page of the Mathematics Test will provide a blank column that you can use for scratch work. Otherwise, you will be provided with scratch paper.
- **If you plan to use a calculator on the Mathematics Test, review the details about permissible calculators on page 4. Use a calculator with which you are familiar for both the practice test and on the test day. You may use any four-function, scientific, or graphing calculator on the Mathematics Test, as long as the calculator has none of the features included in the list on page 4.**
- Use a kitchen timer or a clock so you can time yourself on the four tests. Set your timer for five minutes less than the allotted time for each test so you can get used to the five-minute warning.
- Allow yourself only the time permitted for each test.
- Detach and use the sample answer sheet on pages 11–12.
- Read the general test directions on the first page of the practice test. These are the same directions that will appear on your test booklet on the test day. After you have read the directions, begin taking the practice test.
- After you finish the practice test, use the scoring keys and conversion tables on pages 55–61 of this booklet to score your practice test.

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ACT ASSESSMENT *1997-98 National Answer Sheet*

SIDE 1

A NAME, ADDRESS, AND TELEPHONE (Please print.)

Last Name First Name MI (Middle Initial)

House Number and Street

City State ZIP Code

Area Code / Number

IDENTIFYING INFORMATION

Instructions for Registered Examinees: Your answer sheet will be matched to your registration record using the information you enter in blocks B, C, and D. Enter the information EXACTLY as it appears on your admission ticket, even if any part of the information is missing or incorrect. Fill in the corresponding ovals. Leave block E blank.

Instructions for Standby Examinees: Enter your identifying information in blocks B, C, and D. Fill in the corresponding ovals. (If you do not have a Social Security Number, leave block C blank.) You must also fill in the Standby Testing oval in block E.

B MATCH NAME (FIRST 5 LETTERS OF LAST NAME)

C SOCIAL SECURITY NUMBER (OR ACT ID NUMBER)

— —

D DATE OF BIRTH

Month Day Year

○ Jan
○ Feb
○ Mar
○ Apr
○ May
○ June
○ July
○ Aug
○ Sep
○ Oct
○ Nov
○ Dec

E STANDBY TESTING

Fill in this oval ONLY if you turned in a standby registration folder at the test center. This will help ACT to match your answer sheet to your registration record.

○ Yes, I am testing as a standby examinee.

ACT

P.O. BOX 168, IOWA CITY, IOWA 52243-0168

Instructions for Registered Examinees: If the information on your admission ticket is complete and correct, do NOT mark in blocks F, G, H, or I. If any corrections are necessary, complete ONLY the block(s) below for which the information on your admission ticket is INCOMPLETE or INCORRECT. Leave the other blocks blank.

Instructions for Standby Examinees: Do NOT mark in blocks F, G, H, or I.

F NAME CORRECTION

Last Name | First Name | MI

G SOCIAL SECURITY NUMBER CORRECTION

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H DATE OF BIRTH CORRECTION

Month Day Year

○ Jan
○ Feb
○ Mar
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○ May
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○ Nov
○ Dec

I HIGH SCHOOL CODE CORRECTION

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Printed in U.S.A. 011 2159 70 IC-3715 7

You may wish to remove this sample answer document from the booklet to use in a practice test session.

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SIDE 2

BOOKLET NUMBER

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DO NOT SIGN THIS UNTIL YOU HAVE COMPLETED THIS ENTIRE SECTION.

I hereby certify that I have truthfully identified myself on this form. I understand that the consequences of falsifying my identity include cancellation of my scores.

Your Signature

Today's Date

961280

Practice Test

FORM 9753C

The ACT Assessment

DIRECTIONS

This booklet contains tests in English, Mathematics, Reading, and Science Reasoning. These tests measure skills and abilities highly related to high school course work and success in college. *CALCULATORS MAY BE USED ON THE MATHEMATICS TEST ONLY.*

The questions in each test are numbered, and the suggested answers for each question are lettered. On the answer document, the rows of ovals are numbered to match the questions, and the ovals in each row are lettered to correspond to the suggested answers.

For each question, first decide which answer is best. Next, locate on the answer document the row of ovals numbered the same as the question. Then, locate the oval in that row lettered the same as your answer. Finally, fill in the oval completely. Use a soft lead pencil and make your marks heavy and black. *DO NOT USE A BALLPOINT PEN.*

Mark only one answer to each question. If you change your mind about an answer, erase your first mark thoroughly before marking your new answer. For each question, make certain that you mark in the row of ovals with the same number as the question.

Only responses marked on your answer document will be scored. Your score on each test will be based only on the number of questions you answer correctly during the time allowed for that test. You will NOT be penalized for guessing. *IT IS TO YOUR ADVANTAGE TO ANSWER EVERY QUESTION EVEN IF YOU MUST GUESS.*

You may work on each test ONLY when your test supervisor tells you to do so. If you finish a test before time is called for that test, you should use the time remaining to reconsider questions you are uncertain about in that test. You may NOT look back to a test on which time has already been called, and you may NOT go ahead to another test. To do so will disqualify you from the examination.

Lay your pencil down immediately when time is called at the end of each test. You may NOT for any reason fill in ovals for a test after time is called for that test. To do so will disqualify you from the examination.

Do not fold or tear the pages of your test booklet.

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ENGLISH TEST

45 Minutes—75 Questions

DIRECTIONS: In the five passages that follow, certain words and phrases are underlined and numbered. In the right-hand column, you will find alternatives for each underlined part. You are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is best, choose "NO CHANGE."

You will also find questions about a section of the passage, or about the passage as a whole. These questions do not refer to an underlined portion of the passage, but rather are identified by a number or numbers in a box.

For each question, choose the alternative you consider best and fill in the corresponding oval on your answer document. Read eacn passage through once before you begin to answer the questions that accompany it. You cannot determine most answers without reading several sentences beyond the question. Be sure that you have read far enough ahead each time you choose an alternative.

PASSAGE I

A Homecoming

[1]

During the American Revolution thousands of slaves were chose[1] to flee from their American owners and seek refuge and British protection from danger.[2] Many Americans tried to reclaim their slaves after the war, but the British refused to turn them over; offering[3] the escaped slaves a home in Nova Scotia (Latin for *New Scotland*).[4] After ten years in Canada, a group of about 2,000 blacks decided to emigrate to Sierra Leone in West Africa.

[2]

Many famous Americans lost slaves in this manner. For example,[5] seventeen of George Washington's slaves escaped in British patrolling the Potomac River[6]

1. A. NO CHANGE
   B. chose
   C. choose
   D. chosed

2. F. NO CHANGE
   G. in the protection of British shelter.
   H. among the British.
   J. and shelter.

3. A. NO CHANGE
   B. over. Offering
   C. over, offering
   D. over, and offering

4. F. NO CHANGE
   G. Scotia, which is the Latin for *New Scotland*.
   H. Scotia—*New Scotland* in Latin.
   J. Scotia.

5. A. NO CHANGE
   B. manner, for example,
   C. manner, for example
   D. manner for example,

6. F. NO CHANGE
   G. (Place after *Washington's*)
   H. (Place after *escaped*)
   J. (Place after *boats* and end sentence with a period)

boats. At least three of those, who escaped,[7] went to Nova Scotia and were among the group who eventually settled in Sierra Leone.

[3]

Hundreds of escaped slaves who fled from their owners[8] assisted the British during the War of Independence. Many of them fought alongside the British in a company known as "The Black Pioneers." One of these men, Thomas Peters, became a spokesperson for the blacks in Canada, expressing grievances against their white neighbors there. Forced to accept the least desirable jobs, most blacks were very poor. Some of them were even being kidnapped, taken to the United States, and sold back into slavery.[9] Peters traveled to England to complain of the treatment of blacks in Nova Scotia and, while there, also visited Scotland and Ireland.[10]

[4]

Perhaps as many as a third of the blacks who went to Sierra Leone were African-born. But the chance that they would be able to return to the actual village of their birth was slim. Nevertheless,[11] some did succeed in completing this long and circuitous journey that ended in an emotional homecoming.

[5]

The story of the escaped slaves proves that the idea of independence was held just as dear by black Americans in 1776 than[12] it was by whites. Many thousands of slaves risked their lives to

7. **A.** NO CHANGE
B. three of those who escaped
C. three of those who escaped,
D. three, of those who escaped,

8. **F.** NO CHANGE
G. who ran away from the servitude of their ownership
H. hightailing it for freedom
J. OMIT the underlined portion.

9. **A.** NO CHANGE
B. the kidnappers sold them back into slavery.
C. they once again became slaves.
D. again live the life of a slave.

10. Assuming all are true, which of the alternatives would provide information that is most consistent with the main emphasis of the essay?
F. NO CHANGE
G. was able to view the home of Shakespeare.
H. promoted the Sierra Leone emigration.
J. was able to tour the infamous Tower of London.

11. **A.** NO CHANGE
B. In addition,
C. On the contrary,
D. Thus,

12. **F.** NO CHANGE
G. like
H. as if
J. as

GO ON TO THE NEXT PAGE.

escape,[13] hundreds died of disease and exposure along the way to Canada. Later, though, a large number who managed to reach the British territory refused to accept their second-class status[14] there and found new homes for themselves in Africa.

13. A. NO CHANGE
    B. escape
    C. escape, and
    D. escape, therefore,

14. Which of the alternatives most effectively and accurately describes the situation of the escaped slaves in Canada?
    F. NO CHANGE
    G. inalienable rights
    H. circumstances
    J. privileges

Item 15 poses a question about the essay as a whole.

15. Suppose a magazine editor were to ask the writer of this essay to write a sentence that would serve as a caption for or summary of the essay. Which of the following would most effectively accomplish that purpose?
    A. During the American Revolution, thousands of African-American slaves felt a strong urge to join their owners' fight for freedom.
    B. The tiny West African country of Sierra Leone owes the leaders of the American Revolution a debt of thanks for their discovery and settling of it.
    C. While the American colonies were involved in breaking their ties with England, many American slaves were finding a way to gain their own freedom.
    D. The participation of African-American slaves in the War of Independence most likely altered the outcome of that great event.

PASSAGE II

Match the Hatch

[1]

Every sport must I suppose,[16] have its purists. Among rock climbers you'll find those who scramble up cliff faces without support ropes. Some skiers, disdaining[17] chair lifts, which prefer[18] instead to ascend mountains under leg power. There are golfers who prefer to tote the latest in custom-made clubs rather than ride in a comfortable golf cart. When it comes to fishing,

16. F. NO CHANGE
    G. must, I suppose
    H. must, I suppose,
    J. must; I suppose,

17. A. NO CHANGE
    B. skiers which are disdaining
    C. skiers, disdainful as to the existence of
    D. skiers disdain

18. F. NO CHANGE
    G. preferring
    H. preferred
    J. preferentially

GO ON TO THE NEXT PAGE.

the purest of the purists[19] fish with fly poles.

[2]

[1] Fly anglers are a separate breed; if nothing else there[20] better equipped than other fishers. [2] Fly anglers hit the water with neoprene waders, $300 graphite rods, and vests sporting forty-seven zippered pockets. [3] Similarly,[21] your garden-variety angler will have a second-hand pole, a rusting spin-cast reel carrying its[22] bucket of live bait. [4] Both catch fish, of course, whereas[23] fly anglers insist that they alone pursue their quarry in a dignified and challenging manner.

[3]

Serious fly anglers live by the motto "match the hatch." This means that they take the water temperature and consult field guides to ensure that the artificial fly employed by them copies and mimics the real thing like itself.[24] The perfect fly will probably emerge from one of those forty-seven zippered pockets!

[4]

Once the hatch is matched, there arises the problem of presentation. The fly angler must lay the fly on the stream because his[25] floats, bobs, and wiggles as a natural fly would. Getting this right involves slogging through the water, thrashing about with the fly pole, and breaking a mean sweat. A fly must be floated downstream time after time after time, in hopes that it will drift passed[26] the nose of a hungry fish.

19. **A.** NO CHANGE
B. most purest of the purists, they
C. more purer of the purist's
D. purely pure are

20. **F.** NO CHANGE
G. if for nothing else, they're
H. if nothing else, they're
J. like nothing else, they're

21. **A.** NO CHANGE
B. Therefore,
C. Moreover,
D. In contrast,

22. **F.** NO CHANGE
G. reel, and a
H. reel, with its
J. reel, and carrying

23. **A.** NO CHANGE
B. thus
C. since
D. but

24. **F.** NO CHANGE
G. employed mimics the real thing.
H. is the real thing employed by them.
J. similarly mimics the real thing itself.

25. **A.** NO CHANGE
B. which
C. since he
D. so that it

26. **F.** NO CHANGE
G. passing
H. pass
J. past

[5]

[1] There is an alternative, however. [2] Rather than turning fishing into an exotic and cost-excessively expensive science, [27] you can simply bait your hook with a worm, toss it into the water, and relax on a sunny rock. [3] When the tip of your fishing rod twitches, set the hook and reel in the fish. [4] Purists may scorn such tactics, that [28] the fish will never notice the difference.

27. **A.** NO CHANGE
B. expensively unusual and exotic
C. costly and expensive
D. exotic and expensive

28. **F.** NO CHANGE
G. but
H. which
J. as if

Items 29 and 30 pose questions about the essay as a whole.

29. Which of the following sequences of sentences will make Paragraph 5 most logical?

A. NO CHANGE
B. 2, 1, 3, 4
C. 2, 1, 4, 3
D. 2, 4, 3, 1

30. The writer is considering adding the following sentence to the essay and placing it before Sentence 3 in Paragraph 2:

> They use hooks intricately disguised to look like insects.

The writer should add this sentence because it will further:

F. support the contrast between fly anglers and garden-variety anglers.
G. demonstrate the similarity between fly anglers and garden-variety anglers.
H. emphasize that garden-variety anglers are good at fly fishing.
J. describe the relationship between fishing and various other recreational pursuits.

PASSAGE III

The following paragraphs may or may not be in the most logical order. Each paragraph is numbered in brackets, and item 45 will ask you to choose the sequence of paragraphs that will make the essay most logical.

Making Money

[1]

The engraving is precise and demanding work. Hand-held styluses are used to cut complex patterns

GO ON TO THE NEXT PAGE.

in quarter-inch-thick steel plates. There are[31] strict division of labor. Some engravers do only portraits. Others do nothing but scrollwork or lettering. The specialization ensures high-quality, detailed printing plates that results in making[32] counterfeiting difficult. Each bill is printed on paper.[33] The portrait of Andrew Jackson taken[34] about two months on the twenty-dollar bill[35] to complete.

[2]

All U.S. paper money is engraved and printed at the Bureau of Engraving and Printing in Washington, D.C. Security[36] is tight at the twenty-seven-acre facility. It has 400 closed-circuit video cameras, several thousand alarms, and an army of security officers. The only windows are in the engraving department, where natural light is needed by the fourteen full-time engravers.

[3]

Once they have completed it, they are[37] sent to the printing department. Four working plates made from the original engravings are wrapped around a drum. The turning drum smears the plates with hot gummy ink, wipes their surfaces clean, however, it[38] squeezes a sheet of special paper against the plates. Bills are printed in sheets of thirty-two, (four columns across, eight rows down).[39] After being inspected for defects, the sheets are cut

31. **A.** NO CHANGE
B. is
C. have been
D. are a

32. **F.** NO CHANGE
G. make
H. makes
J. contributes to making

33. **A.** NO CHANGE
B. The two-dollar bill has never been popular.
C. Coins are minted elsewhere.
D. OMIT the underlined portion.

34. **F.** NO CHANGE
G. has takened
H. took
J. had took

35. **A.** NO CHANGE
B. (Place after *portrait*)
C. (Place after *Jackson*)
D. (Place after *complete* and end sentence with a period)

36. **F.** NO CHANGE
G. Next, this security
H. Despite this, security
J. Finally, the security

37. **A.** NO CHANGE
B. they have completed it, it is
C. the engravers have completed their work, the plates are
D. the plates are completed, it is

38. **F.** NO CHANGE
G. for instance, it
H. then it
J. and then

39. **A.** NO CHANGE
B. thirty-two (four columns across, eight rows down).
C. thirty-two; four columns across; eight rows down.
D. thirty-two; (four columns across, eight rows down).

down to size. Finally, letterpresses are used to add serial numbers, and Treasury and federal seals.

[4]

Currently, six billion bank notes are now [40] printed annually. This is more than twice the number produced annually in [41] the 1970s. The increase is attributed to inflation, more cash-only fast-food restaurants dollar [42] changers on vending machines, and automatic banking machines which require crisp bills and to [43] keep up with demand, the bureau works at a frantic pace, keeping its fourteen currency presses running day and night, often seven days a week. "You have to think of it as a product, like shampoo," was a comment made by an employee in the packaging department [44]. "If you think of it as money, you'll go crazy."

40. F. NO CHANGE
    G. are, at this time,
    H. are
    J. are presently

41. Assuming that all are true, which of the alternatives would most specifically illustrate the size of the increase in the number of bank notes printed by the Bureau of Engraving and Printing?
    A. NO CHANGE
    B. much more annually than in
    C. an escalation in annual production since
    D. a marked annual increase compared to

42. F. NO CHANGE
    G. fast-food, restaurants dollar
    H. fast-food restaurants dollar,
    J. fast-food restaurants, dollar

43. A. NO CHANGE
    B. bills. To
    C. bills, to
    D. bills to

44. F. NO CHANGE
    G. was a comment by an employee made in the packaging department.
    H. an employee in the packaging department commented.
    J. was an observation made in the packaging department by an employee.

Item 45 poses a question about the essay as a whole.

45. Which of the following sequences of paragraphs will make the essay most logical?
    A. NO CHANGE
    B. 1, 3, 2, 4
    C. 2, 1, 4, 3
    D. 2, 1, 3, 4

GO ON TO THE NEXT PAGE.

PASSAGE IV

Nightmares, Fears, and Overcoming Both

[1]

I know the glazed look that comes over people's[46] faces when I say, "I had the strangest dream last night." Still, I think what I have to say might be interesting, because it has to do with dreams that many people have after laying their heads down upon their pillows.[47]

[2]

I am thinking, in part, of the dreams I had when I was a college student. They were all variants on[48] the same theme and in them.[49] I am required to repeat third grade. "There must be some mistake," I always say. "I am almost through with high school." No one cares. I had missed a week of third grade with the mumps.[50] I must go back to that grade to make it up.

[3]

When I was twenty-three, I suddenly stopped being a student and started being a teacher. [51] One semester, I was sitting in a too-small desk, busily taking notes. The next semester, lectures were being given.[52] Since I was a young and inexperienced teacher,

46. F. NO CHANGE
    G. peoples
    H. peoples'
    J. people

47. A. NO CHANGE
    B. have when they dream.
    C. have.
    D. have, when they dream at night.

48. F. NO CHANGE
    G. It was a variant on
    H. It was variations with
    J. They were all variants after

49. A. NO CHANGE
    B. theme. In them,
    C. theme in them,
    D. theme in them.

50. The writer wants to explain why the narrator is required, in the dream, to repeat third grade. Assuming all are true, which of the alternative sentences would most effectively accomplish this?
    F. NO CHANGE
    G. I'm nineteen years old in the dream, but that doesn't seem to matter.
    H. The third grade is a particularly enjoyable year for some students.
    J. I think about how crazy this all is.

51. The writer wishes to add a sentence here that will emphasize the point that the change in the narrator's life occurred swiftly. Which of the following would most effectively accomplish this?
    A. I was teaching an introductory course at a community college.
    B. I had little time to pause and reflect between my two occupations.
    C. I had finished school and was ready to settle down, maybe in the suburbs.
    D. I realized that I was a novice surrounded by savvy, experienced professionals.

52. F. NO CHANGE
    G. Giving lectures was the next semester.
    H. The next semester was giving lectures.
    J. The next semester, I was giving lectures.

I should have been nervous,[53] but I was secretly relieved—no more panicked dreams about third grade.

[4]

Then,[54] the teacher nightmares started. In these dreams, I stand in front of a class of students who think I am the biggest joke in the world. They chew sandwiches and talk to each other. I try to run a class discussion but no one pays attention. Instead, people play basketball. Meanwhile, I said[55] in a very thin voice, "No, really, I am the teacher. I *am.*" Not a person in the room will believe me. After all, I am too young to be a teacher.

[5]

Concerning my dreams, I have[56] been having teacher nightmares for years. Whenever I wake up from one, I want to run to school and reassure my students. I want to tell them that some dreams are about fears, and lucky for me, lucky for them[57] fears can be overcome. [58]

53. A. NO CHANGE
    B. I should have been nervous due to the fact of my age and inexperience,
    C. just twenty-three, my age should have made me nervous,
    D. due to my age and inexperience, I should have been nervous,

54. F. NO CHANGE
    G. To begin with,
    H. Once,
    J. Similarly,

55. A. NO CHANGE
    B. say
    C. might have been saying
    D. was saying

56. F. NO CHANGE
    G. Concerning dreams, have I
    H. In terms of my dreams, I have
    J. I have

57. A. NO CHANGE
    B. and lucky for me lucky for them,
    C. and—lucky for me—lucky for them
    D. and—lucky for me, lucky for them—

58. In order to summarize and close the essay, the writer is considering the addition of the following sentence:

> Dreaming about success will not necessarily guarantee that you will succeed.

Should the writer make this addition?

F. Yes, because it reinforces the point that dreams are not facts.
G. Yes, because it allows the writer to end the essay in a realistic and honest fashion.
H. Yes, because it provides the opposite of the point made in the previous sentence.
J. No, because it provides a digression that leads the essay away from its primary focus.

Items 59 and 60 pose questions about the essay as a whole.

59. The writer wishes to add the following sentence as the opening for one of the essay's paragraphs:

> I know it is boring to listen to other people's dreams.

The new sentence would most logically be placed at the beginning of Paragraph:

A. 1.
B. 2.
C. 3.
D. 5.

60. Suppose the writer had been assigned by the editor of a journal for teachers to write a personal essay about some aspect of the educational experience. Would this essay successfully fulfill the assignment?

F. Yes, because the essay describes an incident in which the narrator had to discipline a misbehaving class.
G. Yes, because the essay describes emotions the narrator has felt as both a student and a teacher.
H. No, because the essay describes students goofing off when they should have been learning.
J. No, because the essay concentrates on course work rather than on the real experience of being a student or teacher.

PASSAGE V

Mom's Frugality

Mom was so frugal, that[61] she used to embarrass my brother and me.[62] Even back in the sixties, long before any energy crisis, she was conscious for[63] gas mileage. Other kids would get ferried to school by mothers driving those long and elegant cars—Eldorados, New Yorkers, Vista Cruisers. Our mom drove us in her Volkswagen Beetle. Believe me, that cute little car wasn't a status symbol back then.

To save fuel oil, she would turn the thermostats down to 58 degrees in the upstairs bedrooms. She said, sleeping[64] in cool bedrooms was much better for us anyway. Still, we felt a lot healthier when we stayed overnight with friends because the bedrooms

61. A. NO CHANGE
B. frugal that
C. frugal that,
D. frugal, that,

62. F. NO CHANGE
G. I and my brother.
H. my brother and I.
J. me brother and I.

63. A. NO CHANGE
B. over
C. of
D. with

64. F. NO CHANGE
G. said sleeping
H. said sleeping,
J. said: sleeping

in their houses were warm. [65] Mom never understood why our friends would stay with us only in the summer.

Mom was very proud of the fact that we spent so little on heating.[66] There weren't any recycling centers back then—at least not where we lived—but very little in our house was thrown away.[67] Jelly jars, coffee cans, and any other reusable containers she washed and then were stored[68] in the basement. Jars and cans always came in handy. Mom said, milk[69] cartons were also valuable. Sometimes our fisherman, neighbor[70] gave us fresh fish. Mom would fillet them, put the fillets in cartons, fill the cartons with water, and freeze them. Blue jeans we'd outgrown she would weave into the rag rugs that were strewn around the house. [71] But they were[72] those bags she saved that caused us such humiliation. When the weather was pleasant, Mom would sometimes wash out twenty or thirty plastic bread bags and hang them outside on the clothesline

65. Which of the following would be an acceptable substitute for the word *Still* that introduces the preceding sentence?

- **A.** Moreover
- **B.** All the same
- **C.** Increasingly
- **D.** For instance

66. Which of the alternative sentences would most effectively introduce the subject of this paragraph?

- **F.** NO CHANGE
- **G.** In the summer, our house was too *warm* because Mom set the air conditioner at 80 degrees.
- **H.** As you might guess, Mom was the original recycler.
- **J.** The concept of recycling is a very traditional and "conservative" one.

67.
- **A.** NO CHANGE
- **B.** away or discarded.
- **C.** out or disposed of.
- **D.** away without being recycled.

68.
- **F.** NO CHANGE
- **G.** then stored
- **H.** were stored by her then
- **J.** were then stored

69.
- **A.** NO CHANGE
- **B.** said milk
- **C.** said. Milk
- **D.** said and milk

70.
- **F.** NO CHANGE
- **G.** fisherman neighbor,
- **H.** fisherman neighbor
- **J.** fisherman, and neighbor

71. Assuming that all are true, which of the following sentences would add another example of Mom's activities in a way most consistent with the main focus of this paragraph?

- **A.** These days, Mom is able to buy firsthand material for the rugs she now weaves for other people.
- **B.** If disposable diapers had been available then, Mom wouldn't have even considered buying them.
- **C.** She took our newspapers to the grocery, where they were used to wrap shoppers' frozen foods.
- **D.** It would hurt her deeply to admit that something could not be reused in some way.

72.
- **F.** NO CHANGE
- **G.** it was
- **H.** there was
- **J.** OMIT the underlined portion.

GO ON TO THE NEXT PAGE.

to dry! What did the neighbors think?

That, however, is like polluted water under the bridge. 73 Since then, of course, Mom has been vindicated. Saving energy and recycling now have becomed 74 socially correct. Mom wasn't cheap; she was just ahead of her time.

73. Which of the alternatives would most effectively provide a smooth and appropriate transition to this final paragraph?
    - **A.** NO CHANGE
    - **B.** As time passed, Mom began to tone down her recycling mania.
    - **C.** The concept of breathable air, for instance, was gone with the wind.
    - **D.** All that was nearly thirty years ago.

74.
    - **F.** NO CHANGE
    - **G.** have now became
    - **H.** and becoming now
    - **J.** have now become

Item 75 poses a question about the essay as a whole.

75. Suppose that the writer's intention here has been to show that when forming lifelong energy-saving and recycling habits, children follow the examples set by their parents. Has the essay been successful in this respect?
    - **A.** Yes, because the essay gives a detailed example of a parent who both recycled and saved energy.
    - **B.** Yes, because the essay says that saving energy and recycling are now socially acceptable activities.
    - **C.** No, because the essay clearly states that the narrator is still too embarrassed to save energy and recycle.
    - **D.** No, because even though the narrator's mother recycled and saved energy, the essay doesn't indicate whether the narrator now does those things.

END OF TEST 1

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

MATHEMATICS TEST

60 Minutes—60 Questions

DIRECTIONS: Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

---

1. What is the average of 3, 3, and 4 ?

A. 3
B. $3\frac{1}{3}$
C. $3\frac{1}{2}$
D. $3\frac{2}{3}$
E. 4

2. A positive number plus its square is equal to 56. What is the number?

F. 5
G. 6
H. 7
J. 8
K. 9

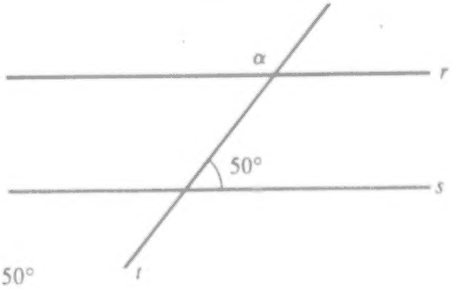
3. For all x, $(2x - 3)(x + 5) = ?$

A. $x^2 + 2x - 15$
B. $2x^2 - 13x - 15$
C. $2x^2 + 2x - 15$
D. $2x^2 + 2x + 15$
E. $2x^2 + 7x - 15$

4. A beaker of liquid cools from 19° to −6°. By how many degrees has it cooled?

F. 6°
G. 13°
H. 19°
J. 25°
K. 26°

5. In the figure below, parallel lines r and s are intersected by line t. What is the measure of angle α ?



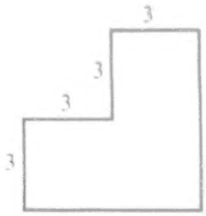
A. 50°
B. 100°
C. 130°
D. 140°
E. 150°

6. Ticket sales for this year's annual concert at County Stadium were \$350,000. The promoter is predicting that next year's ticket sales, in dollars, will be 60% greater than this year's. How many dollars in ticket sales is the promoter predicting for next year?

F. \$350,060
G. \$410,000
H. \$560,000
J. \$583,333
K. \$950,000

7. Adjacent segments in the hexagon below are perpendicular, and 4 segments are each 3 yards long, as marked. What is the perimeter of the hexagon, in yards?

A. 12
B. 18
C. 24
D. 27
E. 30



100

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8. For all a and b, $3a^2b^3(2a^3b^3) = ?$

F. $5a^5b^6$
G. $5a^6b^9$
H. $6a^2b^3$
J. $6a^5b^6$
K. $6a^6b^9$

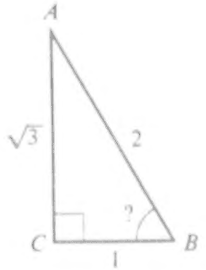
9. In a certain triangle, the longest side is 1 foot longer than the second-longest side, and the second-longest side is 1 foot longer than the shortest side. If the perimeter is 21 feet, how many feet long is the shortest side?

A. 6
B. 7
C. 8
D. 9
E. 10

10. What is 5% of 50 ?

F. 0.5
G. 2.5
H. 5
J. 10
K. 25

11. What is the measure of $\angle ABC$ in the triangle below?



A. 15°
B. 30°
C. 45°
D. 60°
E. 75°

12. Anna wants to completely cover the rectangular ceiling of her room with soundproof tile so she can play her stereo as loudly as she wants. Her ceiling is 16 feet long and 10 feet wide. The tiles are 2-feet-by-2-feet squares. How many tiles does Anna need to cover her ceiling with one layer of soundproof tiles?

F. 20
G. 26
H. 40
J. 52
K. 80

13. What is the midpoint of the line segment with endpoints of (−3,5) and (5,9) ?

A. (−3,7)
B. (1,5)
C. (1,7)
D. (4,7)
E. (5,7)

14. What is the smallest positive integer x such that $|2 - x| \geq 6$?

F. 3
G. 5
H. 6
J. 7
K. 8

15. What is the greatest prime factor of 520 ?

A. 5
B. 7
C. 11
D. 13
E. 17

16. What is the value of $x^3 - x^2 - x$ when $x = -1$?

F. −3
G. −1
H. 0
J. 1
K. 3

17. Running at a steady pace of 90 seconds per quarter mile, how many minutes would it take to run 2 miles?

A. 12.0
B. 8.0
C. 7.2
D. 4.5
E. 3.0

18. If $a = 0.3$ and $b = 0.4$, then $ab^2 = ?$

F. 0.0144
G. 0.019
H. 0.048
J. 0.24
K. 0.49

19. $\sqrt{x-5}$ is a real number if and only if:

A. $x \leq -5$
B. $-5 < x < 0$
C. $x = 0$
D. $0 < x < 5$
E. $x \geq 5$

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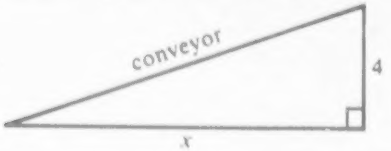
20. The manufacturer of an airport baggage conveyor recommends a slope of no more than 0.25. If the baggage conveyor in the figure below rises 4 feet, what is the minimum acceptable value for x, in feet?



F. $4\frac{1}{4}$

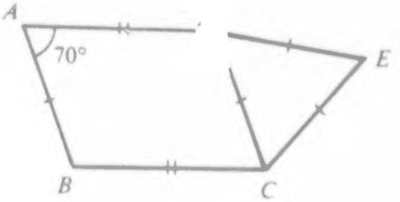
G. 5

H. 16

J. 25

K. 29

21. The figure below is made from a parallelogram, $ABCD$, and an equilateral triangle, ΔCDE. What is the measure of $\angle ADE$?



A. 110°
B. 130°
C. 150°
D. 170°
E. 190°

22. Which equation below has the solutions $x = p$ and $x = q$?

F. $(x - p)(x - q) = 0$
G. $(x - p)(x - q) = 1$
H. $(x + p)(x + q) = 0$
J. $x + p + q = 0$
K. $x + pq = 0$

23. Which of the following is an irrational number?

A. $|-1.9|$

B. 0

C. $\frac{1}{7}$

D. 0.3

E. $\sqrt{6}$

24. In the (x,y) coordinate plane, what is the slope of the line $y = x - 5$?

F. -5

G. -1

H. $\frac{1}{5}$

J. 1

K. 5

25. What is the smallest number greater than 1 that, when divided by 2, 3, 4, 5, or 6, leaves a remainder of 1 in each case?

A. 7
B. 31
C. 61
D. 121
E. 721

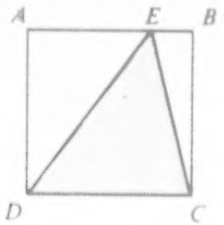
26. A car rental company charges \$50.00 per day plus \$0.80 per mile for a full-size car, and charges \$30.00 per day plus \$0.50 per mile for a compact car. Which expression below gives the amount, in dollars, that the charge for a full-size car exceeds the charge for a compact car, when each is rented for x days and y miles?

F. $-20x - 0.30y$
G. $20x + 0.30y$
H. $20x + 30y$
J. $20x + 1.30y$
K. $80x + 1.30y$

27. A square has an area of 41.3 square centimeters. If s is the side length of the square in centimeters, then s must lie between which 2 consecutive integers?

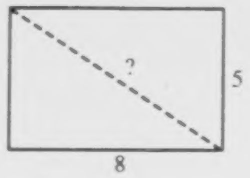
A. $4 < s < 5$
B. $6 < s < 7$
C. $10 < s < 11$
D. $20 < s < 21$
E. $41 < s < 42$

28. In the figure below, square $ABCD$ has sides 12 centimeters long, and E is on side $\overline{AB}$. In square centimeters, what is the area of ΔDEC?



F. 36
G. 48
H. 72
J. 96
K. 144

29. How many centimeters long is the diagonal of a rectangle that is 5 centimeters wide and 8 centimeters long, as shown below?



A. 13
B. $\sqrt{13}$
C. $\sqrt{40}$
D. $\sqrt{89}$
E. $\sqrt{99}$

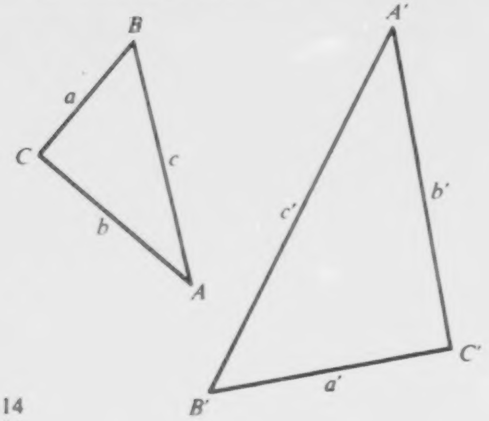
30. Near a large city, planes take off from two airfields. One of the fields is capable of sending up a plane every 3 minutes. The other field is capable of sending up 2 planes every 7 minutes. At these rates, which of the following is the most reasonable estimate of the total number of planes the two airfields could send up in 90 minutes?

F. 18
G. 27
H. 36
J. 44
K. 55

31. What are the (x,y) coordinates of the unique point on the graph of $x + 4y = 18$ such that the y-coordinate of that point is twice the x-coordinate?

A. (1,2)
B. (2,4)
C. (3,6)
D. (4,8)
E. (9,18)

32. The figure below shows 2 triangles, where $\Delta ABC \sim \Delta A'B'C'$. In these similar triangles, $a = 9$, $b = 12$, $c = 15$, and $a' = 15$, with all dimensions given in feet. What is the value of b'?



F. 14
G. 16
H. 18
J. 20
K. 22

33. In the (x,y) coordinate plane, if the point $(-4,2)$ is on the graph of $y = ax^2$, what is the value of a?

A. -1

B. 1

C. $-\frac{1}{2}$

D. $-\frac{1}{8}$

E. $\frac{1}{8}$

34. The two parabolas $y = ax^2 + n$ and $y = x^2 + q$ have the same vertex when graphed in the (x,y) coordinate plane. Which of the following *must* be true?

F. $n + q = 0$
G. $nq = a$
H. $nq = 1$
J. $a = 1$
K. $n = q$

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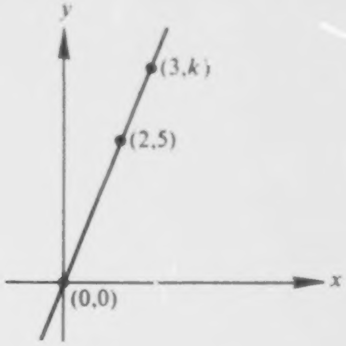
35. In the (x,y) coordinate plane below, a straight line passes through the 3 indicated points. What is the value of k?



A. $-\frac{15}{2}$

B. $-\frac{6}{5}$

C. $\frac{6}{5}$

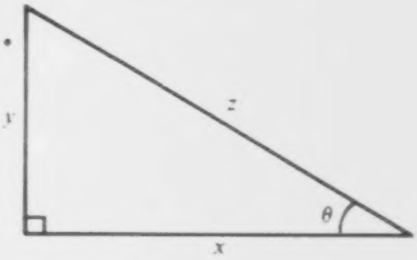
D. 6

E. $\frac{15}{2}$

36. A circle has a diameter of 6 inches. What is the circle's area, in square inches?

F. 6π
G. 9π
H. 12π
J. 18π
K. 36π

37. For the right triangle below, which of the following expressions is equal to $\cos\theta$?



A. $\frac{x}{y}$

B. $\frac{x}{z}$

C. $\frac{y}{x}$

D. $\frac{y}{z}$

E. $\frac{z}{x}$

38. For all $x>0$, which of the following is a simplified form of $\frac{3x^2+14x+8}{x^2+6x+8}$?

F. $\frac{3x+2}{x+2}$

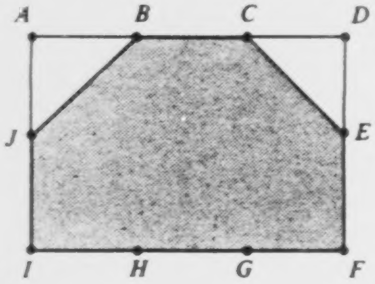
G. $\frac{(3x+1)(x+8)}{(x+2)(x+4)}$

H. $3x+2$

J. $2x^2+8x$

K. $6\frac{1}{3}$

39. In rectangle $ADFI$ below, the 10 labeled points are equally spaced along the perimeter. What is the ratio of the shaded area to the area of the entire rectangle?



A. $\frac{7}{8}$

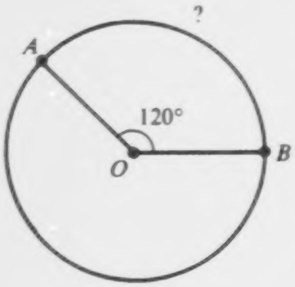
B. $\frac{5}{6}$

C. $\frac{4}{5}$

D. $\frac{3}{4}$

E. $\frac{2}{3}$

40. If the circumference of the circle below is 93 parsecs, and O is the center of the circle, how many parsecs long is minor arc $\overset{\frown}{AB}$?



F. 31

G. 31π

H. $\frac{93}{\pi}$

J. 213

K. 11,160

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41. One of the angles in an isosceles triangle measures 24°. Which of the following is a possible measure for another of the triangle's angles?

A. 42°
B. 52°
C. 66°
D. 78°
E. 156°

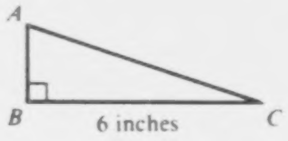
42. For all real x and m, if $(x - 1)(x + m) = x^2 + kx - m$, then $k = ?$

F. 0
G. 1
H. m
J. $m + 1$
K. $m - 1$

43. If the product of 5 integers is positive, at least how many of these 5 integers *must* be positive?

A. 1
B. 2
C. 3
D. 4
E. 5

44. In the right triangle below, if $\angle C$ has a sine of $\frac{2}{\sqrt{29}}$, a cosine of $\frac{5}{\sqrt{29}}$, and a tangent of $\frac{2}{5}$, how many inches long is $\overline{AB}$?



F. $\frac{2}{5}$

G. $\frac{12}{5}$

H. $\frac{12}{\sqrt{29}}$

J. $\frac{30}{\sqrt{29}}$

K. 6

45. A 45-foot wire is cut into 2 pieces whose lengths are in the ratio 2:3. What is the length of the shorter piece, in feet?

A. 9

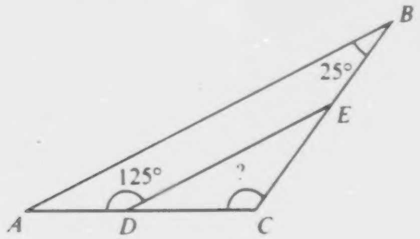
B. 15

C. 18

D. $22\frac{1}{2}$

E. 30

46. For $\triangle ABC$ below, D and E are points on the sides of the triangle. If $\overline{AB}$ is parallel to $\overline{DE}$, what is the measure of $\angle ACB$?



F. 80°
G. 100°
H. 125°
J. 150°
K. 155°

47. The distance around a circular path is 1,000 meters. Which of the following most nearly approximates the radius of the path, in meters?

(Note: $\pi \approx 3.14$)

A. 10
B. 18
C. 32
D. 159
E. 318

48. What is the value of $(x + 2)(x - 3) + 5$ when $x^2 - x - 6 = -4$?

F. −2
G. −1
H. 1
J. 2
K. 3

49. Elkville High won a Friday night basketball game by 10 points; the next night they scored 25 points more than on Friday and again won by 10 points. The sum of the opponents' scores for the 2 games was 109. How many points did Elkville score on Friday?

A. 37
B. 41
C. 46
D. 52
E. 72

50. If $x = 3^a$ and $y = 3^{-a}$ then what is y in terms of x ?

F. $y = \frac{1}{x}$

G. $y = -\frac{1}{x}$

H. $y = \frac{3}{x}$

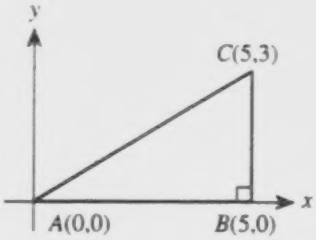
J. $y = -x$

K. $y = x^{-1}$

GO ON TO THE NEXT PAGE.

51. In the figure below, what is the sine of $\angle BAC$?

A. $\frac{3}{5}$
B. $\frac{3}{4}$
C. $\frac{5}{3}$
D. $\frac{3}{\sqrt{34}}$
E. $\frac{5}{\sqrt{34}}$



52. While watching TV from 7:00 P.M. to 8:00 P.M., you count 20 commercials, each 30 seconds long. To the nearest percent, what percent of the hour is taken up by commercials?

F. 6%
G. 10%
H. 17%
J. 50%
K. 60%

53. The sum of the 3 integers x, y, and z is 100. If $0 < x < 40$, and $y < 0$, what is the smallest possible value for z ?

A. 58
B. 59
C. 60
D. 61
E. 62

54. If $(x + m)^2 = x^2 + 12x + n$, where m and n are integers, what is the value of n ?

F. 36
G. 30
H. 24
J. 18
K. 12

55. What is the length, in coordinate units, of the diameter of a circle whose endpoints have coordinates (12,3) and (6,-5) in the standard (x,y) coordinate plane?

A. $\sqrt{28}$
B. $\sqrt{80}$
C. $\sqrt{82}$
D. $\sqrt{100}$
E. $\sqrt{202}$

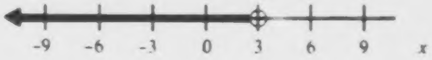
56. The circle $(x - 1)^2 + (y - 2)^2 = 26$ intersects the y-axis in two points, one of which is (0,7). At what other point does the circle intersect the y-axis?

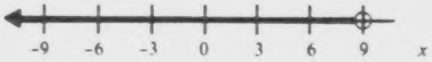
F. (0,-7)
G. (0,-3)
H. (0,3)
J. $(0,\sqrt{26})$
K. (7,0)

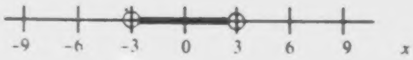
57. If $x + y = 6$, then $x^2 = $?

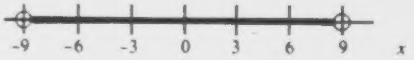
A. $y^2 - 12y - 36$
B. $y^2 - 36$
C. $6 - y^2$
D. $36 - y^2$
E. $36 - 12y + y^2$

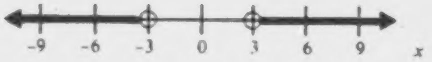
58. Which of the following is the graph of the solution set for $x^2 < 9$?

F.


G.


H.


J.


K.


59. There is a pattern in the units digit of the positive integer powers of each whole number. Some powers of 2 are shown below. What is the units digit of 3^{45} ?

Powers of 2	Units digit
$2^1 = 2$	2
$2^2 = 4$	4
$2^3 = 8$	8
$2^4 = 16$	6
$2^5 = 32$	2
$2^6 = 64$	4
$2^7 = 128$	8
$2^8 = 256$	6

A. 1
B. 3
C. 5
D. 7
E. 9

GO ON TO THE NEXT PAGE.

60. Whenever $\frac{2\cos\alpha\sin\alpha}{\cos^2\alpha + 1 - \sin^2\alpha}$ is defined, it simplifies to:

F. $\tan\alpha$

G. $\cot\alpha$

H. 2

J. $\frac{2}{\cos\alpha - \sin\alpha}$

K. $\sin\alpha\ \cos\alpha$

END OF TEST 2

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

DO NOT RETURN TO THE PREVIOUS TEST.

READING TEST

35 Minutes—40 Questions

DIRECTIONS: There are four passages in this test. Each passage is followed by several questions. After reading a passage, choose the best answer to each question and fill in the corresponding oval on your answer document. You may refer to the passages as often as necessary.

Passage I

PROSE FICTION: This passage is adapted from the short story "Invitations" by Carol Shields (©1985 by Carol Shields).

On Monday she looked in her mailbox, although she had no reason to expect a letter so soon. But there it was, a small, square card. . . .

It was an invitation to an exhibition of drawings at a private gallery. The name of the artist was only faintly familiar to her, and she couldn't decide if she'd ever seen his work or not. She tried to imagine what kind of drawings she was being invited to view—would they be primitive or abstract or what was sometimes called "magic realism"? She summoned these categories to mind and then decided it didn't matter. What mattered was that she had been invited.

The invitation pleased her, though she wasn't such a fool as to think she'd been specifically singled out because of her aesthetic sensitivity or because of her knowledge of modern graphics or even because of the pleasure of her company. The address on the card had been typed; her name, in fact, was misspelled, the last two letters transposed. Somewhere, no doubt, she'd turned up on a mailing list—that was all.

She would wear a certain printed velvet skirt she had and with it a black turtleneck sweater. No one would expect her to buy a drawing or even to comment on the exhibition. It was necessary only to accept a glass of wine and a cube of orange cheese and stand for a minute or two in front of each drawing, nodding comprehendingly and perhaps murmuring something properly neutral into the air such as "nicely detailed" or "wonderful sense of space.". . .

On Tuesday she was again taken by surprise, for in her mailbox there was another invitation, this time for a cocktail party. . . . It was a disappointment that the party was being held on the same night as the gallery opening and that, furthermore, it was at the same hour. For a minute she entertained the possibility of attending both functions, galloping breathlessly from one to the other. But no, it was not feasible. . . .

Of course she would choose the cocktail party. The gallery opening, now that she stopped to think about it, was no more than a commercial venture, an enticement to buyers and patrons. It would be fraudulent of her to attend when she'd no intention of buying a picture, and besides, she was drawn to cocktail parties. She was attracted, in fact, to parties of all kinds, seeing them as an opportunity to possess, for a few hours at least, a life that was denser, more concentrated and more vigorous than the usual spun-out wastes of time that had to be scratched endlessly for substance. She could still wear her certain velvet skirt, but with a pretty red satin blouse she'd recently acquired.

On Wednesday, strangely, she received a third invitation—and it, too, was for Saturday evening. This time the invitation was handwritten, a rather charming note which she read through quickly three times. She was being invited to a small buffet supper. . . .

Of course she could not say no. How much more congenial to go to a supper party than to peer at violent works of art and mutter, "Interesting, interesting," and how much more rewarding than standing about with a drink and a salty canapé and trying to make conversation with a room full of strangers. Her green silk dress would be suitable, if not precisely perfect, and she could gamble safely enough on the fact that no one would have seen it before.

Thursday's mail brought still another invitation, also unfortunately for Saturday evening. . . . The invitation, which was for a formal dinner party, was printed on fine paper, and there was a handwritten note at the bottom. "We do hope you can make it," the note said. "Of course we know you by reputation and we've been looking forward to meeting you for years."

It had been some time since she'd attended a formal dinner party, and she was flattered to be sent an invitation with a handwritten note at the bottom. It pleased her to imagine a large, vaulted dining room and a parade of courses elegantly served. . . . Her green silk, with perhaps the double strand of pearls, would be festive enough, but at the same time subdued and formal.

She wasn't entirely surprised to look into her mailbox on Friday and see that she'd been sent yet another invitation. The paper was a heavy, creamy stock and came enclosed in a thick double envelope. There was to be a reception—a *gala* it was called—at

GO ON TO THE NEXT PAGE.

the top of a large downtown hotel on Saturday evening. The guest of honor, she read, was to be herself.

1. The main character decides not to try to attend both the gallery opening and the cocktail party because to do so would be:

A. overly flattering.
B. obviously impractical.
C. financially impossible.
D. morally inappropriate.

2. It can reasonably be inferred from the fourth paragraph (lines 21-29) that, should she attend the exhibition of drawings, the main character expects to find that:

F. she will be treated to many thoughtful remarks.
G. she will loathe the artist's work.
H. little will be expected of her.
J. comments about the drawings will be analytical.

3. The events to which the main character is invited can fairly be described as being:

A. increasingly enticing.
B. more and more vigorous.
C. more and more comprehensible.
D. less and less glamorous.

4. It can reasonably be inferred from the passage that, in the order of their arrival, the tone of the invitations received by the main character is increasingly:

F. patronizing.
G. casual.
H. feasible.
J. complimentary.

5. When the main character imagined attending the formal dinner party, the imagined dinner included:

A. salty canapés.
B. a small buffet-style supper.
C. a table of honor for her.
D. many courses of food.

6. As it is used in line 28, the phrase *properly neutral* most nearly means:

F. politely inoffensive.
G. intellectually compromised.
H. wholly comprehensive.
J. comprehendingly feasible.

7. The fifth paragraph (lines 30–37) states that the conflict between the cocktail party and the gallery opening causes the main character to feel:

A. disappointment.
B. flattered.
C. honor.
D. gratification.

8. According to the passage, the invitation to the gala reception was uniquely distinguished by:

I. arriving with a handwritten note.
II. coming in a thick double envelope.
III. the charming note it contained.

F. I only
G. II only
H. I and II only
J. II and III only

9. When the author mentions the "usual spun-out wastes of time that had to be scratched endlessly for substance" (lines 47–48), she is implying that the main character of the passage is:

A. both active and overburdened with work.
B. quite social yet not very sincere or honest.
C. bored and lacking in interesting things to do.
D. somewhat festive but socially insincere.

10. The main character imagines wearing her green silk dress to both the:

F. cocktail party and the gallery opening.
G. formal dinner and the buffet supper.
H. formal dinner and the gala reception.
J. gala reception and the buffet supper.

Passage II

SOCIAL SCIENCE: This passage is adapted from the biography *Huey Long* by T. Harry Williams (©1969 by Alfred A. Knopf, Inc.).

The story seems too good to be true—but people who should know swear that it is true. The first time that Huey P. Long campaigned in rural, Latin, Catholic south Louisiana, the local boss who had him in charge said at the beginning of the tour: "Huey, you ought to remember one thing in your speeches today. You're from north Louisiana, but now you're in south Louisiana. And we got a lot of Catholic voters down here." "I know," Huey answered. And throughout the day in every small town Long would begin by saying: "When I was a boy, I would get up at six o'clock in the morning on Sunday, and I would hitch our old horse up to the buggy and I would take my Catholic grandparents to mass. I would bring them home, and at ten o'clock I would hitch the old horse up again, and I would take my Baptist grandparents to church." The effect of the anecdote on the audiences was obvious, and on the way back to Baton Rouge that night the local leader said admiringly: "Why, Huey, you've been holding out on us. I didn't know you had any Catholic grandparents." "Don't be a . . . fool," replied Huey. "We didn't even have a horse."

Some people would say today, as some said then, that the incident was characteristic of Huey P. Long, that it revealed all the cynicism and contempt of democracy and all the scheming ruthlessness of the man who seemed in the 1930's to be the first American dictator, the first great native fascist, who was compared to Hitler and Mussolini, who finally commanded one of the largest mass followings in the country and appeared to be on the verge of taking over the national government as he had his own state. And he was a new type of leader on the American scene—this man whose reddish-brown hair dipped rebelliously over his forehead, whose full and facile face could in a moment shift from its usual expression of mischief to one of consuming anger, who could act like a rustic clown off the platform and turn into a magnetic spellbinder when he stepped on it. A pudgy pixie who could suddenly become a demon, he was different—and yet in many ways he was completely traditional. His many enemies missed the latter aspect. . . . But not even they could deny that something made him surpassingly interesting; something set him apart from other leaders of his time. . . .

. . . He went to Washington with the conviction that his destiny would lead him to the presidency, just as from youth he planned step by step the career that would lead him to the highest office. He entered the Senate as a liberal Democrat, a supporter of men and measures to curb big business. In 1932 he advocated that his party nominate as its presidential candidate Franklin D. Roosevelt. . . . Long stumped vigorously for Roosevelt in the campaign, and after the latter's election there was a brief period when it seemed that the two were going to make an unusually effective combination, the Eastern and the Southern liberals working together for liberal reform. That possibility evaporated almost immediately. . . . He realized that Roosevelt was a man who had a will fully as strong as his own and who was also just as great a politician. Returning from an interview with Roosevelt, he said to a close friend: "I found a man as smart as I am. I don't know if I can travel with him.". . .

Roosevelt . . . feared what Long might accomplish as a conventional political operator, as a rival who might unseat him from the presidency. On the eve of the election of 1936 most of the talk at Democratic headquarters concerned Long's intentions, and it was scared talk. Would Huey be a presidential candidate on a third-party ticket? . . . Long himself had a somewhat different plan. According to the testimony of intimates, he intended to run some liberal Democrat as a third-party entry and so divide the liberal vote that the Republican candidate would win. The Republicans would be incapable of dealing with the depression, the economic system would go to pieces, and by 1940 the country would be crying for a strong leader to save it. . . .

. . . Conceivably, it might have happened just as he thought it would. Just as conceivably, it might not have. Long might well have foundered on the rock of the two-party system, as other gifted political rebels before him had done. Instead of grasping the supreme success he saw as his destiny, he might have lived out his life as a frustrated and embittered secondary politician. What might have been can never be known. Fate, which has shattered the dreams of other strong men, suddenly intervened. On a warm September night in 1935 Huey Long, at the height of his power, apparently invincible, was shot down by an assassin in his capitol at Baton Rouge.

11. It can reasonably be inferred from the third paragraph (lines 46–64) that Huey Long considered himself to be a:

A. mediocre, but lucky, politician.
B. liberal of the Eastern, rather than Southern, type.
C. brilliant politician.
D. smarter politician than Roosevelt.

12. Long believed that Republicans were incapable of:

F. handling the problems of the depression.
G. dealing with big business.
H. winning the 1936 presidential election.
J. ruining the country.

13. As it is used in line 53, the word *stumped* most nearly means:

A. cleared.
B. baffled.
C. campaigned.
D. trimmed.

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14. The Democrats' fear of Huey Long prior to the 1936 presidential campaign is an indication of:

F. Long's power and popularity.
G. Roosevelt's strength.
H. their fear in general of presidential elections.
J. their indifference to third parties.

15. It can reasonably be inferred from the third paragraph (lines 46–64) that Huey Long's desire to be president began when he:

A. became a liberal Democrat.
B. was a young man.
C. first met Franklin D. Roosevelt.
D. made his first speech.

16. According to the passage, even Huey Long's enemies at least had to admit he was:

F. a religious man.
G. an intriguing character.
H. a powerful third-party candidate.
J. completely traditional.

17. According to the account in the passage, Huey Long's plan to win the presidency in 1940 indicates that Long considered his political aspirations to be:

A. more closely aligned with the Republican party.
B. unimportant compared to the effects of the depression.
C. unrealistic given Roosevelt's overwhelming popularity.
D. more important than the nation's well-being.

18. Huey Long's plan to "so divide the liberal vote that the Republican candidate would win" (lines 74–75) hinges upon the assumption that:

F. some Democrats would vote for the third-party entry.
G. most Democrats would vote Republican.
H. all Democrats would vote for the third-party entry.
J. most Republicans would vote for the third-party entry.

19. According to the last paragraph, the author believes that if Huey Long would have had the chance to follow through on his plan:

A. Long would have failed to become president because fate would have intervened.
B. Long would have obtained even more power as a third-party candidate.
C. Long may have become a Republican candidate for president.
D. Long's chances for winning the presidency were about the same as his chances for losing.

20. According to the passage, Huey Long supported legislation to:

F. enforce communist control in America.
G. restrain big business.
H. help big business.
J. aid the Republican party.

Passage III

HUMANITIES: This passage is adapted from Kenneth Naversen's article "19th Century Survivors: Northern California Victorians" (©1988 by the California State Automobile Association).

In the last couple of decades, Victorian houses have been enjoying a renaissance. Recent generations raised on the skim milk of modern architecture lately have acquired a taste for the butterfat and flamboyance of late 19th century design. As a result, restored Victorians have become newly conspicuous throughout the country. Old cottages and mansions left over from the previous century are being refurbished everywhere, and in some communities entire neighborhoods are aglitter with freshly painted towers, turrets, fish-scale shingles, carved wooden fancywork, and other trappings from those fabled days before the turn of the century.

Northern California, as it happens, is especially well endowed with relics from its golden past. American settlement of the West Coast, after all, coincided neatly with the Victorian era in architecture, and in that period a half-dozen uninhibited building styles fashionable in the East were brought to the Pacific, where they dominated house design until the turn of the century.

The gingerbread age began in California when that infamous horde of gold seekers flooded through San Francisco on their way to the mother lode country in the middle of the last century. In the 50 years that followed, ornate mansions and more modest, but similarly inspired cottages sprouted up almost everywhere around the state. Towered, frilly, eccentric, they were perfect architectural expressions of the heady, turbulent times in which they were born.

Today, most of them have disappeared, victims of ineluctable progress. But, considering the phenomenal development that has overtaken the state in the last 100 years, California has been remarkably successful in preserving its architectural heritage—and not only in obvious bastions of tradition like San Francisco and Eureka. Today it is rare to find a community founded before the turn of the century that does not boast at least a few architectural treasures. Many towns—Napa, Santa Cruz, Woodland—have entire blocks of vintage houses. . . . Even Southern California, home of the fast lane, retains a small but select sampling.

The first of the Victorian styles, Gothic Revival, arrived in California in the form of prefabricated houses in the 1850s. While local building industries were being developed, dozens of cottages, complete to windows and gingerbread trim, were shipped 'round the Horn from New England to be assembled in San Francisco and its environs. A few of them still can be found in towns like Atherton, Benicia, and Sonoma.

Other Victorian styles, Italianate, French Second Empire, Eastlake, Queen Anne, also were borrowed from the East. But it was not long before house design on the West Coast began to take some idiosyncratic twists of its own.

San Francisco, a town fueled from the start by dreams and gold dust, was particularly prone to flights of architectural fancy. Architects and builders attracted by the unprecedented boom taking place in the Golden Gate city soon were blending elements of several styles to produce effects that sometimes shocked visitors from the Atlantic. "Extravagant and bizarre" was the judgment of one English commentator on some of their more exotic creations. But, as the century progressed, the city's architectural influence was felt in towns up and down the coast. By the 1880s, elements of what had been dubbed "The San Francisco Style" could be found from Seattle to San Diego.

Closer to home, the East Bay developed as a "desirable suburban location" where Victorian houses had space to expand more luxuriously than in the city. Today, Berkeley and Oakland have many fine old residences dating from the 1880s and '90s, and Alameda maintains one of the densest clusters of elaborate, well-maintained Victorians in the country.

Redwood construction had a special influence on building in Northern California. On one hand, the material lent itself readily to the sort of ornament that later was damned as Victorian excess; on the other, its resistance to decay was very real. Its frequent use as a construction material helps explain both the extravagance and the longevity of many of the houses built during that period. This is especially apparent in Eureka and Arcata, where local lumber barons vied with one another to build the consummate redwood palace. The most famous of them all, the William Carson mansion, stands, a century after it was built, as one of the monuments of Victorian architecture in America. But the two towns on Humboldt Bay also have many smaller, no less interesting examples.

21. According to the passage, which of the following best describes Victorian architecture?

A. Ornate and flamboyant
B. Compact and fancy
C. Prefabricated and oversized
D. Practical and austere

22. The towns of Atherton, Benicia, and Sonoma are mentioned in the passage because they contain examples of:

F. Gothic Revival homes prefabricated in New England.
G. consummate redwood palaces.
H. dense clusters of elaborate East Bay Victorians.
J. the San Francisco Style of Victorian homes.

23. Which of the following cities, famous for their Victorian homes, does the passage identify as being located on Humboldt Bay?

A. Napa and Santa Cruz
B. San Francisco and Eureka
C. Eureka and Arcata
D. Berkeley and Oakland

GO ON TO THE NEXT PAGE.

24. According to the passage, the particular use in certain regions of redwood lumber in Victorian house construction helps to explain the:
    - F. extravagantly detailed and well-preserved examples in those areas.
    - G. lack of fancy ornamentation on the examples in those areas.
    - H. high cost of house construction in those areas.
    - J. number of houses unable to survive the process of decay.

25. Which of the following best expresses the main idea of the first paragraph?
    - A. Many Victorian homes have recently been replaced with ones in the Renaissance style.
    - B. People all over the country have begun to appreciate and renovate Victorian homes.
    - C. Many architectural studies are being undertaken in an effort to become more familiar with the Victorian style.
    - D. Many new houses are being designed to imitate the nineteenth-century Victorian style.

26. As it is used in line 3, the phrase "skim milk of modern architecture" apparently describes modern architecture's:
    - F. dependence on late-nineteenth-century design.
    - G. lack of financial support.
    - H. excess of detail.
    - J. austere and minimal style.

27. According to the fourth paragraph (lines 30–41), a person in search of examples of Victorian architecture in California today would most likely find:
    - A. many newer cities with their own replicas of Victorian homes.
    - B. the best sampling of Victorian homes scattered across the southern part of the state.
    - C. very few communities that boast examples of Victorian homes.
    - D. well-preserved Victorian homes in many communities throughout the state.

28. According to the seventh paragraph (lines 55–67), which of the following statements most accurately reflects Victorian architecture on the West Coast?
    - F. Over time, the Victorian architecture of the West Coast developed a particular style of its own.
    - G. The "San Francisco Style" describes the Victorian homes shipped to the West Coast from New England.
    - H. San Francisco residents found Victorian architecture "extravagant and bizarre."
    - J. By the 1880s, Victorian homes were being shipped in great numbers to the West Coast from New England.

29. Which of the following best explains the phrase "perfect architectural expressions of the heady, turbulent times in which they were born" (lines 28–29)?
    - A. Prefabricated design was the most efficient one available to home-builders during the California Gold Rush.
    - B. The gaudy look of the Victorian house appealed to the individuals made wealthy during the California Gold Rush.
    - C. During the California Gold Rush, architects designed Victorian houses in order to provoke political unrest.
    - D. The established families of that time built their homes along conservative Victorian lines, which best expressed their sentiments.

30. According to the seventh paragraph (lines 55–67), the San Francisco Style can best be described as:
    - F. a shocking new style with no architectural forebears.
    - G. a conservative answer to the New England Victorian styles.
    - H. an abrupt reversal of the Victorian trends in architecture.
    - J. a whimsical mixture of architectural styles.

Passage IV

NATURAL SCIENCE: This passage is adapted from Lewis Thomas's *The Medusa and the Snail: More Notes of a Biology Watcher* (©1979 by Lewis Thomas).

We tend to think of our selves as the only wholly unique creations in nature, but it is not so. Uniqueness is so commonplace a property of living things that there is really nothing at all unique about it. . . . Even individual, free-swimming bacteria can be viewed as unique entities, distinguishable from each other even when they are the progeny of a single clone. Spudich and Koshland have recently reported that motile microorganisms of the same species are like solitary eccentrics in their swimming behavior. When they are searching for food, some tumble in one direction for precisely so many seconds before quitting, while others tumble differently and for different, but characteristic, periods of time. If you watch them closely, tethered by their flagellae to the surface of an antibody-coated slide, you can tell them from each other by the way they twirl, as accurately as though they had different names. . . .

Fish can tell each other apart as individuals, by the smell of self. So can mice, and here the olfactory discrimination is governed by the same H_2 locus which contains the genes for immunologic self-marking. . . .

The markers of self, and the sensing mechanisms responsible for detecting such markers, are conventionally regarded as mechanisms for maintaining individuality for its own sake, enabling one kind of creature to defend and protect itself against all the rest. Selfness, seen thus, is for self-preservation.

In real life, though, it doesn't seem to work this way. The self-marking of invertebrate animals in the sea, who must have perfected the business long before evolution got around to us, was set up in order to permit creatures of one kind to locate others, not for predation but to set up symbiotic households. The anemones who live on the shells of crabs are precisely finicky; so are the crabs. Only a single species of anemone will find its way to only a single species of crab. They sense each other exquisitely, and live together as though made for each other.

Sometimes there is such a mix-up about selfness that two creatures, each attracted by the molecular configuration of the other, incorporate the two selves to make a single organism. The best story I've ever heard about this is the tale told of the nudibranch and medusa living in the Bay of Naples. When first observed, the nudibranch, a common sea slug, was found to have a tiny vestigial parasite, in the form of a jellyfish, permanently affixed to the ventral surface near the mouth. In curiosity to learn how the medusa got there, some marine biologists began searching the local waters for earlier developmental forms, and discovered something amazing. The attached parasite, although apparently so specialized as to have given up living for itself, can still produce offspring, for they are found in abundance at certain seasons of the year. They drift through the upper waters, grow up nicely and astonishingly, and finally become full-grown, handsome, normal jellyfish. Meanwhile, the snail produces snail larvae, and these too begin to grow normally, but not for long. While still extremely small, they become entrapped in the tentacles of the medusa and then engulfed within the umbrella-shaped body. At first glance, you'd believe the medusae are now the predators, paying back for earlier humiliations, and the snails the prey. But no. Soon the snails, undigested and insatiable, begin to eat, browsing away first at the radial canals, then the borders of the rim, finally the tentacles, until the jellyfish becomes reduced in substance by being eaten while the snail grows correspondingly in size. At the end, the arrangement is back to the first scene, with the full-grown nudibranch basking, and nothing left of the jellyfish except the round, successfully edited parasite, safely affixed to the skin near the mouth.

It is a confusing tale to sort out, and even more confusing to think about. Both creatures are designed for this encounter, marked as selves so that they can find each other in the waters of the Bay of Naples. The collaboration, if you want to call it that, is entirely specific; it is only this species of medusa and only this kind of nudibranch that can come together and live this way. And, more surprising, they cannot live in any other way; they depend for their survival on each other. They are not really selves, they are specific *others*.

. . . I've never heard of such a cycle before. [These creatures] are bizarre, that's it, unique. And at the same time, like a vaguely remembered dream, they remind me of the whole earth at once.

31. What concept does the author use the research of Spudich and Koshland to support?

- **A.** That sameness is universal
- **B.** That uniqueness is commonplace
- **C.** That bacteria can swim
- **D.** That bacteria can clone behavior

32. How does the discussion of uniqueness in the first three paragraphs (lines 1–27) function in the passage?

- **F.** It introduces the concept of sameness to prove that all sea life is really the same.
- **G.** It introduces the concept of self-marking in order to explain how animals defend against predators.
- **H.** It introduces the concept of difference in nature to prove that different creatures really can't get along.
- **J.** It illustrates the ways of understanding self and uniqueness that are suggested by nature.

33. The author offers the illustration of the anemone and the crab as an example of:

- **A.** competing predators.
- **B.** a predator and its prey.
- **C.** a symbiotic relationship.
- **D.** creatures with only a single species.

GO ON TO THE NEXT PAGE.

34. It is reasonable to infer from the passage that the author would agree with which of the following statements about uniqueness?

F. Only life forms that are really bizarre, like the jellyfish and the snail, can finally be called unique.
G. If scientists understood real life instead of just their abstract theories, they would understand that only humans are unique.
H. While uniqueness may be characteristic of all creatures, and thus the norm, each creature and each species is still unique and interesting.
J. Being unique is not as important as conventionally thought, because scientists now know that uniqueness exists to facilitate predation.

35. What reason does the passage give for why scientists investigated the snail and the jellyfish?

A. Scientists wanted to discover why the jellyfish was affixed to the snail.
B. Scientists wanted to discover the evolutionary origin of the snail.
C. Scientists wanted to discover how the jellyfish reached full growth.
D. Scientists wanted to discover the origins of predation.

36. As it is used in line 8, the word *motile* most nearly means:

F. too small to be observed.
G. moving or capable of movement.
H. similar in their swimming behavior.
J. identical in their motions.

37. The passage specifies that observers can distinguish individual motile microorganisms from one another by noting which of the following?

I. The direction they tumble
II. The amount of time they tumble
III. The kind of food they prefer

A. I only
B. III only
C. I and II only
D. I, II, and III

38. It is reasonable to conclude from the passage that the relationship between the snail and the medusa should be characterized as:

F. necessary for each to survive.
G. beneficial to the species but harmful to the individuals.
H. beneficial to the individuals but harmful to the species.
J. commonplace among sea life.

39. What "marker of self" did Spudich and Koshland report?

A. The defense mechanisms of bacteria
B. The swimming behavior of motile microorganisms
C. The food-searching behavior of antibodies
D. The self-preservation chromosome of motile organisms

40. What "earlier humiliations" is the author referring to in lines 62–63?

F. The snails being trapped by the jellyfish
G. The jellyfish being turned into tiny parasites
H. The failure of the jellyfish to reach their full growth
J. The failure of the snails to reach their full growth

END OF TEST 3

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

DO NOT RETURN TO A PREVIOUS TEST.

SCIENCE REASONING TEST

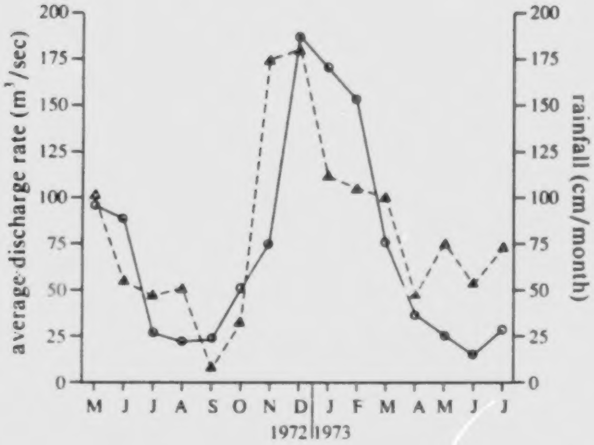
35 Minutes—40 Questions

DIRECTIONS: There are seven passages in this test. Each passage is followed by several questions. After reading a passage, choose the best answer to each question and fill in the corresponding oval on your answer document. You may refer to the passages as often as necessary.

You are NOT permitted to use a calculator on this test.

Passage I

A river discharges freshwater into a large bay (20 miles long and 10 miles wide). Figure 1 represents the average discharge rate of freshwater (in m^3/sec) from the river between May 1972 and July 1973. The rainfall (in cm/month) of the area is also shown for the same time period. Figure 2 represents how the types of water found in the bay vary with depth and time of year. Water types are distinguished by their salt content (salinity).



(Note: Data are monthly averages.)

Figure 1

Key

discharge —o—

rainfall - - ▲ - -

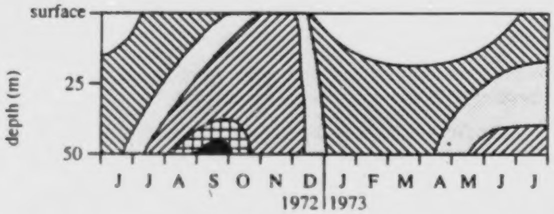


Figure 2

Key

☐	freshwater	lowest salinity
▧	inshore	↓
☐	mixed	
▨	offshore	
⊞	transitional	
■	oceanic	highest salinity

(Note: Salinities are shown continuously throughout each month.)

1. A certain type of fish that can only survive in fresh, surface waters is harvested in the bay. According to Figure 2, during which of the following months of the study period would one be LEAST likely to harvest that fish?
   - **A.** June 1972
   - **B.** September 1972
   - **C.** February 1973
   - **D.** April 1973

2. According to the data provided for September, which water type is the densest?
   - **F.** Freshwater
   - **G.** Inshore water
   - **H.** Mixed water
   - **J.** Oceanic water

3. During which of the following months was the bay water homogeneous throughout its depth?
   - **A.** June 1972
   - **B.** November 1972
   - **C.** February 1973
   - **D.** April 1973

4. If an electronic probe, capable of detecting differences between water types, was placed at a given depth, it would record the most changes in water type during the study period at which of the following depths?

   F. 15 m
   G. 25 m
   H. 30 m
   J. 50 m

5. Which of the following conclusions about levels of salinity in the bay is consistent with the information in Figures 1 and 2 ?

   A. Some of the highest salinities occurred in the bay during periods of low discharge.
   B. The highest salinities occurred at a depth of 25 m throughout the study period.
   C. The lowest salinities occurred at a depth of 25 m throughout the study period.
   D. The surface water in the bay remained at the same salinity throughout the study period.

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Passage II

The effect of various factors on the average lifetime of incandescent light bulbs with tungsten filaments was determined by performing the following three experiments.

Experiment 1

Tungsten filaments of various thicknesses were heated to a constant temperature of 2,400 K (2,127° C) inside a light bulb at 0.1 atmospheres (atm) of pressure. The filament thickness was measured in microns (μ). Table 1 shows the electrical current, in amps, needed to maintain this temperature and the average lifetime in hours (hr) of the filaments.

Table 1

Filament thickness (μ)	Current (amps)	Average lifetime (hr)
25	0.05	800
50	0.20	1,600
100	0.80	3,200
250	5.00	8,000

Experiment 2

The pressure inside identical light bulbs with filaments 25 μ thick was varied by putting various quantities of *inert* (nonreactive) gas inside the bulbs. The tungsten filament temperature was kept at 2,400 K. An increase in pressure from 0.1 to 0.5 atm resulted in an increase in average lifetime from 800 to 6,000 hr. At pressures above 0.5 atm, the average lifetime decreased.

Experiment 3

The temperature of a 250-μ-thick tungsten filament in a light bulb was varied by changing the current through the filament. The pressure was 0.1 atm. The average lifetime and filament *normal brightness* (new candles/cm^2) are recorded in Table 2.

Table 2

Filament temperature (K)	Current (amps)	Normal brightness (new candles/cm^2)	Average lifetime (hr)
2,400	5.00	157	8,000.0
2,500	6.18	240	1,630.0
2,600	6.61	350	377.0
2,800	7.48	690	29.5
3,000	8.38	1,260	3.4
3,200	9.30	2,100	0.5

6. Which of the following procedures would probably NOT provide useful information about the lifetime of light bulb filaments?

F. Varying the shape of the light bulb
G. Varying the quantity of gas inside the light bulb
H. Varying the operating temperature of the light bulb
J. Varying the amount of current going through the filament

7. Based on the results of Experiment 3, the relationship between the temperature of a tungsten filament and its normal brightness is such that as the filament temperature is increased, the normal brightness of the filament:

A. decreases only.
B. decreases to a point and then levels out.
C. increases only.
D. increases to a point and then levels out.

8. Based on the results of Experiment 3, one would predict that a tungsten filament being operated at 2,300 K would have an average lifetime closest to:

F. 50 hr.
G. 500 hr.
H. 5,000 hr.
J. 25,000 hr.

9. Why are the majority of the average lifetimes in Experiment 3 so much shorter than most of the lifetimes in the other experiments?

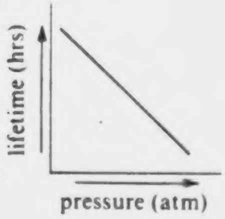
A. Because the filaments were heated to much higher temperatures
B. Because the light bulbs contained only 1 atm of gas
C. Because the current going through the filaments was not measured
D. Because the thicknesses of the filaments were different

10. Of the following combinations of characteristics, the light bulb that would be expected to have the longest filament lifetime at a given temperature would have a:

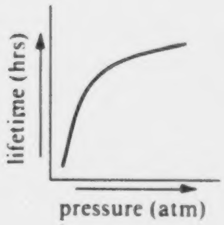
F. 50-μ-thick tungsten filament with 2.5 atm of inert gas.
G. 100-μ-thick tungsten filament with 0.5 atm of inert gas.
H. 150-μ-thick tungsten filament with 0.1 atm of inert gas.
J. 150-μ-thick tungsten filament with 0.5 atm of inert gas.

11. Which of the following graphs most accurately depicts the average lifetime of a filament with respect to the pressure of gas inside the light bulb?

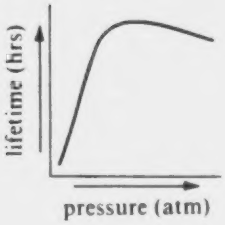
A.



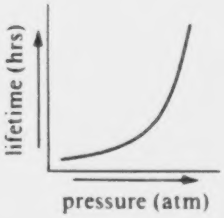
B.



C.



D.



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Passage III

A biologist observed that a specific wildflower species was found in a forest and not in the adjacent meadows. The forest and meadows both had the same soil types and had rabbits which eat many plants including the wildflowers. Seeds of the wildflower were observed in both habitats. To further investigate the growth of this wildflower, the biologist collected 10 seeds from each of 100 randomly selected plants of this species and thoroughly mixed them for planting in the spring.

Experiment 1

One hundred sites, each approximately one meter square, were selected: 50 sites in the forest and 50 sites in the meadow. Half of each site was cleared of existing vegetation. The other half was left undisturbed. The same number of wildflower seeds was planted in each half. After 12 weeks the resulting wildflower plants were dried and weighed. The average plant mass for each treatment is shown in Table 1.

Table 1

	Average mass of dried plants from:	
Site	Cleared half	Uncleared half
Forest	30 g	20 g
Meadow	60 g	5 g

Experiment 2

One hundred sites were prepared as in Experiment 1, but these wildflower plants were allowed to flower, instead of being weighed after 12 weeks. The resulting seeds were collected from each plant and weighed. The average total mass of seeds produced per plant is shown in Table 2.

Table 2

	Average mass of seeds per plant from:	
Site	Cleared half	Uncleared half
Forest	3 g	2 g
Meadow	6 g	0.5 g

12. The biologist collected 10 seeds from each of 100 wildflowers. Would it have been better to collect 100 seeds from each of 10 plants?
    - F. No, because the seed sample would have represented a greater diversity of species.
    - G. No, because the seed sample would not have been as representative of the wildflower population.
    - H. Yes, because it would have been less likely to endanger the wildflower species.
    - J. Yes, because it would have been more likely to obtain a seed sample adapted to local conditions.

13. Which of the following factors was controlled by the biologist in Experiment 1 ?
    - A. Plant mass
    - B. Soil moisture
    - C. Presence of rabbits
    - D. Presence of neighboring plants

14. Burrowing animals create spots of bare earth in the meadow. On the basis of the experimental results, one would predict that over several years the wildflowers would:
    - F. not grow or reproduce in the meadow.
    - G. not grow in the meadow but their seeds would be found in the meadow.
    - H. grow in the meadow and reproduce in the cleared areas created by animals.
    - J. grow in the meadow and reproduce only in the areas containing woody plants.

15. The results of Experiments 1 and 2 best support the conclusion that wildflowers are not found in the meadow because they are:
    - A. eaten by plant-eating animals.
    - B. incapable of growth in the meadow soil type.
    - C. unable to grow successfully in competition with meadow plants.
    - D. unable to reproduce due to the absence of bee pollination.

16. The biologist compared cleared and uncleared halves of each of 100 sites. Would it have been better to clear 50 sites and compare them to 50 uncleared sites in a different location?
    - F. No, because there could have been differences due solely to location.
    - G. No, because this would not reflect natural clearing processes.
    - H. Yes, because the area around the cleared sites would be undisturbed.
    - J. Yes, because the biologist could have selected sites for each treatment based on the existing plant density.

17. On the basis of the results of Experiments 1 and 2, one can generalize that the average mass of seeds obtained from flowering plants was approximately what fraction of the average mass of dried plants?

A. 1/2
B. 1/3
C. 1/4
D. 1/10

Passage IV

Hundreds of ultraviolet (UV) photographic images have been taken of the outer atmosphere of Earth using a spacecraft-based sensor. Scientists examining the images have discovered numerous dark "holes" in the outer atmosphere. Two physicists discuss their views about the origin of these atmospheric holes.

Physicist 1

The holes are caused by numerous small comets that enter Earth's outer atmosphere from elsewhere in the solar system. The comets are composed mainly of ice that vaporizes when it enters the atmosphere, creating a cloud of water vapor. This water vapor absorbs UV light from the Sun which reflects off the Earth and back toward the spacecraft sensors creating the dark holes seen in the photographic images. Holes created by electronic noise and other random processes would be expected once every 200 image frames. The holes that are seen occur at a rate 1,000 times greater. Other scientists have detected water vapor "bursts" (quick rises and falls in the amount of water vapor), lasting about 20 minutes, in the extremely dry portion of the atmosphere 80 km above Earth's surface.

Physicist 2

The holes are not natural phenomena but are actually the result of several kinds of electronic noise. Cosmic rays can interact with the data system on the spacecraft and cause, on average, about 1 in every 8,000 *pixels* (small, square picture elements in an image) to be dark. Electronic data gathered by the sensor are stored on the spacecraft until it is time to transmit the data to Earth. Lightning near the receiver and other sources of electronic noise can interfere with the transmission, causing the Earth-based computer to interpret parts of the image as being dark. In addition, images taken at intermediate or low altitudes also show single, dark pixels scattered throughout the images. If the holes are natural phenomena caused by vaporized comets, strings of several adjacent dark pixels should be seen at those altitudes, and they are not found in the images.

18. If Physicist 1 is correct, the larger the comet, the:

F. less frequently holes will appear.
G. more frequently holes will appear.
H. larger the size of the holes.
J. smaller the size of the holes.

19. According to the information provided, the transformation of a small comet from ice to water vapor is caused by:

A. collisions between comets.
B. sunlight falling on the comet's surface.
C. a chemical reaction caused by lightning.
D. friction between the atmosphere and the comet.

20. According to the information presented by Physicist 1, water vapor bursts are:

F. smaller than comets.
G. transparent to sunlight.
H. short-lived.
J. formed on Earth's surface.

21. If Physicist 2 is correct, which of the following statements would be true about the distribution of holes in the images?

A. There would be more holes visible in images taken on days when thunderstorms are present.
B. There would be fewer holes visible in images taken on days when thunderstorms are present.
C. The number of holes would be the same whether it was stormy or clear.
D. Isolating the receiver from other electrical components would increase the number of holes.

22. Which of the following observations would help to support Physicist 2's view?

F. Cometary ice is denser than water vapor.
G. Filtering out electronic noise at the receiving station decreases the number of holes in an image.
H. Filtering out electronic noise at the receiving station increases the number of holes in an image.
J. The spacecraft's transmitter is always pointed away from Earth.

23. Which of the following observations would support Physicist 1's view?

A. Ground-based telescopes observe comets entering the atmosphere.
B. The receiving station cannot collect data during a thunderstorm.
C. Atmospheric holes appear in the same location in all images.
D. A number of very bright pixels are seen in the images.

GO ON TO THE NEXT PAGE.

24. Which of the following explanations would also account for the presence of holes in the images?

F. Unexpected solar eclipses
G. Lightning storms on Venus
H. Flaws that occurred while converting the electronic data to visible images
J. A uniform thinning of Earth's atmosphere

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Passage V

Clouds can be stimulated to produce precipitation by sprinkling the clouds with various nontoxic compounds from an airplane. This process is known as *cloud seeding*. A meteorologist performed the following cloud-seeding experiments.

Experiment 1

The meteorologist seeded clouds over a specific area with identical amounts of several different solid compounds (A, B, C, D, and E). The seeding was done once a day for 50 days, and all trials were performed at the same altitude. Each compound was used on a different cloud. Because of the sizes of the clouds, not every cloud seeding will cause rain. The meteorologist considered a specific set of trials *successful* if precipitation was caused 10% of the time under all variations of temperature, humidity, barometric pressure, and wind speed (factors that could not be controlled by the meteorologist). The results are in Table 1.

Table 1

Compound	Number of days of rain
A	3
B	0
C	8
D	6
E	4

Experiment 2

Experiment 1 was repeated except the meterologist used various forms of Compound E, including a water solution, and dry samples that were ground coarse, medium, fine, and very fine. Each compound form was used in a once-a-day trial for 50 days and each trial on a different cloud. The results are in Table 2.

Table 2

Compound E form	Number of days of rain
water solution	0
coarse	0
medium	2
fine	4
very fine	9

Experiment 3

Experiment 1 was repeated except that medium-ground Compound A was used to seed clouds at various altitudes. Fifty once-a-day trials were conducted at each altitude. The results are in Table 3.

Table 3

Altitude (ft)	Number of days of rain
5,000	1
8,000	7
12,000	6
16,000	1

25. Which of the following best explains why a nontoxic compound was selected to seed the clouds?

A. So the rain would not be contaminated with toxic substances
B. Because toxic compounds are more expensive
C. To keep the clouds from disappearing after they are seeded
D. To prevent a chemical reaction between the compound and the air

26. If the meteorologist wanted to repeat Experiment 3 using a new compound, which of the following, if any, can be concluded about the new compound before repeating the experiment?

F. The new compound will produce more rain at 5,000 ft than Compound A.
G. The new compound will not cause rain at 16,000 ft.
H. The new compound must have a density equal to that of Compound B.
J. Nothing can be concluded about the new compound based on Experiment 3's results.

27. If Experiment 1 was repeated over a longer period of time and produced 24 days of rain using Compound C, which of the following is most likely the number of trials performed?

A. 50
B. 100
C. 150
D. 200

28. Which of the following would be the LEAST useful variable to measure in further studies of the rain caused by cloud seeding?

F. How hard it rained
G. The total amount of rain produced each day
H. The direction the wind most often blew the rain
J. The average size of the raindrops produced

29. Which of the following procedures would be most helpful in establishing the rain-producing abilities of the five compounds?

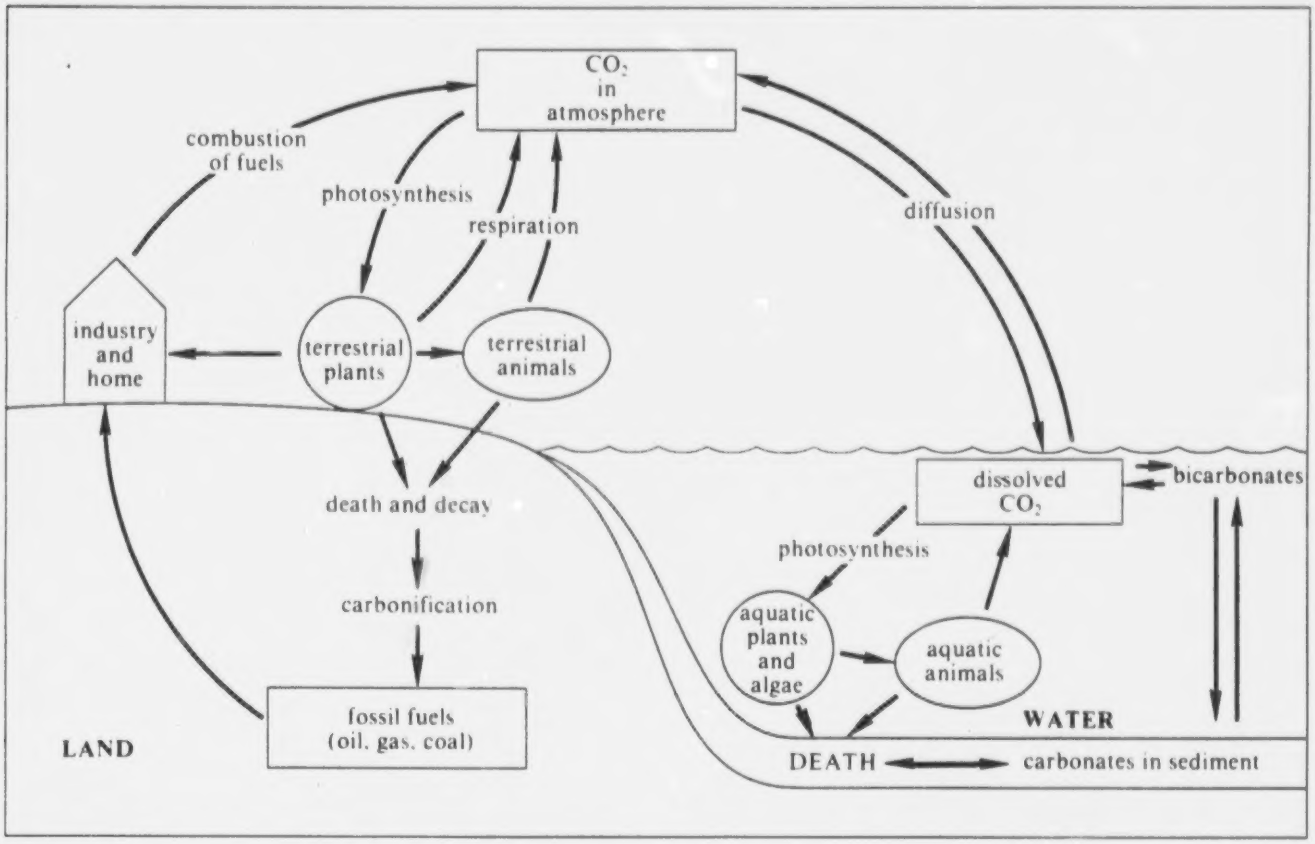
- **A.** Repeating Experiments 1 and 2 with five new compounds
- **B.** Repeating Experiment 2 but performing 100 trials
- **C.** Repeating Experiment 3 but seeding at 6,000 ft
- **D.** Repeating Experiments 2 and 3 on each compound

30. How many of the trial sets in the three experiments would the meteorologist call *successful*?

- **F.** 3
- **G.** 5
- **H.** 10
- **J.** 14

Passage VI

Carbon is a major element in the compounds that form all living tissues. The atmosphere contains an abundance of carbon in the form of carbon dioxide (CO_2). Carbon is continually transferred between atmospheric CO_2 and carbon found in plants, animals, bicarbonates, and their by-products. The chemical activities of plants and animals are an essential part of this carbon cycle as depicted in the figure below.



CO₂ in atmosphere
combustion of fuels
photosynthesis
respiration
diffusion
industry and home
terrestrial plants
terrestrial animals
death and decay
carbonification
fossil fuels (oil, gas, coal)
LAND
dissolved CO₂
bicarbonates
photosynthesis
aquatic plants and algae
aquatic animals
WATER
DEATH
carbonates in sediment

Figure adapted from Peter Raven and George Johnson, *Biology*. © 1986 by Times Mirror/Mosby College Publishing.

31. Which of the following groups of organisms is able to directly use CO_2 from the atmosphere?
   - A. Terrestrial animals only
   - B. Terrestrial plants only
   - C. Aquatic animals only
   - D. Aquatic plants only

32. An increase in atmospheric CO_2 has been suggested as a cause of the ***greenhouse effect***. The level of CO_2 present in the atmosphere has increased to the point that it traps the energy from sunlight in the same manner as a greenhouse. On the basis of the information provided for the carbon cycle, one would predict that the CO_2 level in the atmosphere could be reduced by:
   - F. eliminating the use of chemical fertilizers.
   - G. increasing the number of trees through reforestation.
   - H. protecting animals so that their numbers increase.
   - J. eradicating weeds in lakes and rivers with weed killers.

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33. Animals are incapable of conducting photosynthesis. According to the figure, which of the following best explains how animals obtain the carbon needed for their growth and development?

A. Through eating photosynthetic organisms
B. Through the process of diffusion
C. Through the process of respiration
D. From the atmosphere in the form of CO_2

34. On the basis of the information presented in the figure, which of the following statements is(are) accurate concerning the bicarbonates?

I. They release CO_2 that dissolves in water.
II. They are a direct source of carbon for animals.
III. They are an indirect source of carbon for aquatic plants.

F. I only
G. III only
H. I and II only
J. I and III only

35. According to the figure, all of the following processes directly result in the addition of CO_2 to the atmosphere EXCEPT:

A. combustion of fossil fuels.
B. photosynthesis by terrestrial plants.
C. respiration by terrestrial plants.
D. diffusion of CO_2 dissolved in water.

Passage VII

The pH of a solution is a measure of its acidity or basicity. A neutral solution has a pH of 7.0. The pH of an acidic solution is less than 7.0. The pH of a basic solution is greater than 7.0.

Certain organic substances, known as *indicators*, change color within a specific range of pH values. The pH ranges and color changes for a variety of indicators are depicted in the table below.

Indicator	pH range	Color if pH below range	Color if pH above range
methyl violet	0.1- 1.6	yellow	blue
methyl yellow	2.9- 4.0	red	yellow
bromphenol blue	3.0- 4.6	yellow	blue
methyl orange	3.2- 4.4	red	yellow
methyl red	4.8- 6.0	red	yellow
litmus	5.5- 8.0	red	blue
bromthymol blue	6.0- 7.6	yellow	blue
phenol red	6.6- 8.0	yellow	red
phenolphthalein	8.2-10.6	colorless	red
thymolphthalein	9.4-10.6	colorless	blue
alizarin yellow	10.0-12.0	yellow	red

36. According to the information provided in the table, what can one generalize about the characteristics of litmus that enable it to be a particularly useful indicator?

F. It is the only indicator that can detect a pH of 5.0.
G. It is the only indicator that can detect a pH of 8.0.
H. It can detect a wide pH range that includes neutrality.
J. It indicates pH changes with the primary colors red and yellow.

37. *Which of the following observations would support the conclusion that a given solution is an acid?*

A. Methyl red turns red when added to the solution.
B. Litmus turns blue when added to the solution.
C. Bromthymol blue turns blue when added to the solution.
D. Phenolphthalein turns red when added to the solution.

38. Given the information in the passage and the table, indicators would be effective in determining the pH range for all of the following EXCEPT:

F. acidic solutions.
G. basic solutions.
H. colorless solutions.
J. highly colored solutions.

39. A certain solution makes methyl violet turn blue and bromphenol blue turn yellow. According to the table, it could be concluded that the solution has a pH between:

A. 0.0 and 1.6.
B. 1.6 and 3.0.
C. 3.0 and 4.6.
D. 4.8 and 6.0.

40. A chemistry student was instructed to adjust the pH of a basic solution at pH 8.0 to neutral using .01 M HCl. Which of the following indicators would be best for use in this procedure?

F. Methyl violet
G. Methyl red
H. Bromthymol blue
J. Phenolphthalein

END OF TEST 4

STOP! DO NOT RETURN TO ANY OTHER TEST.

5

Scoring Your Practice Test

How to Score the Practice Test

The remainder of this booklet provides scoring keys and score conversion tables. Follow the instructions below and on the following pages to score the practice test and review your performance.

Raw Scores

The number of questions you answered correctly on each test and in each subscore area is your raw score. Because there are many forms of the ACT, each containing different questions, some forms will be slightly easier (and some slightly harder) than others. A raw score of 67 on one form of the English Test, for example, may be about as difficult to earn as a raw score of 70 on another form of that test.

To compute your raw scores, check your answers with the scoring keys on pages 56–58. Count the number of correct answers for each of the four tests and seven subscore areas, and enter the number in the blanks provided on those pages. These numbers are your raw scores on the tests and subscore areas.

Scale Scores

To adjust for the small differences that occur among different forms of the ACT, the raw scores for tests and subscore areas are converted into *scale scores*. Scale scores are printed on the reports sent to you and your college and scholarship choices.

When your raw scores are converted into scale scores, it becomes possible to compare your scores with those of examinees who completed different test forms. For example, a scale score of 26 on the English Test has the same meaning regardless of the form of the ACT on which it is based.

To determine the scale scores corresponding to your raw scores on the practice test, use the score conversion tables on pages 59–60. Table 1 on page 59 shows the raw-to-scale score conversions for the total tests, and Table 2 on page 60 shows the raw-to-scale score conversions for the subscore areas. Because each form of the ACT Assessment is unique, each form has somewhat different conversion tables. Consequently, these tables provide only approximations of the raw-to-scale score conversions that would apply if a different form of the ACT Assessment were taken. Therefore, the scale scores obtained from the practice test would not be expected to match precisely the scale scores received from a national administration of the ACT Assessment.

Percent At or Below

Even scale scores don't tell the whole story of your test performance. You may want to know how your scores compare to the scores of other college-bound students who take the ACT.

The norms table (Table 3 on page 61) enables you to compare your scores on the sample test with the scores of recent high school graduates who tested as juniors or seniors. The numbers reported in Table 3 are cumulative percents. A cumulative percent is the percent of students who scored *at* or *below* a given score. For example, a Composite score of 20 has a cumulative percent of 50. This means that 50% of the ACT-tested juniors and seniors had a Composite score of 20 or lower.

Remember that your scores and percent at or below on the sample test are only *estimates* of the scores that you will obtain on an actual form of the ACT. Test scores are only one indicator of your level of academic knowledge and skills. Consider your scores in connection with your grades, your performance in outside activities, and your career interests.

New Information Available on Scores

To add to the information you receive about your performance on the ACT Assessment, ACT has developed Score Descriptors. The Score Descriptors help you to more fully understand what your total test score means for each academic area assessed in the ACT Assessment: English, Mathematics, Reading, and Science Reasoning. The Score Descriptors describe the types of skills, strategies, and understandings you will need to make a successful transition from high school to college. Descriptors are provided for five score ranges; they are written as standards-like statements that reflect the progression and complexity of skills in the four academic areas measured in the ACT Assessment. Samples of the Score Descriptors can be found in the student guide, *Using Your ACT Assessment Results*, that you will receive with your score report.

Reviewing Your Performance on the Practice Test

After you have determined your scale scores, consider the following as you evaluate how you did on the practice test.

- Did you run out of time before you completed a test? If so, reread the information in this booklet on pacing yourself. Perhaps you need to adjust the way you used your time in responding to the questions. It is to your advantage to answer every question and pace yourself so that you can do so. Remember there is no penalty for guessing.
- Did you spend too much time trying to understand the directions to the tests? If so, read the directions for each test again thoroughly. The directions in the practice test are exactly like the directions that will appear in your test booklet on the test day. Make sure you understand them now, so you won't have to spend too much time studying them when you take the actual test.
- Review the questions that you missed. Did you select a response that was an incomplete answer or that did not directly respond to the question being asked? Try to figure out what you overlooked in answering the questions.
- Did a particular type of question confuse you? Did the questions you missed come from a particular subscore area? In reviewing your responses to the practice test, check to see whether a particular type of question or a particular subscore area was more difficult for you or took more of your time.

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Scoring Keys for the ACT Practice Test

Use the scoring key for each test to score your answer document for the practice test. Mark a "1" in the blank for each question you answered correctly. Add up the numbers in each subscore area and enter the total number correct for each subscore area in the blanks provided. Also enter the total number correct for each test in the blanks provided. The total number correct for each test is the sum of the number correct in each subscore area.

Test 1: English—Scoring Key

	Key	Subscore Area* UM	Subscore Area* RH		Key	Subscore Area* UM	Subscore Area* RH		Key	Subscore Area* UM	Subscore Area* RH
1.	B	____		26.	J	____		51.	B		____
2.	H		____	27.	D		____	52.	J	____	
3.	C	____		28.	G	____		53.	A		____
4.	J		____	29.	A		____	54.	F		____
5.	A	____		30.	F		____	55.	B	____	
6.	J	____		31.	B	____		56.	J		____
7.	B	____		32.	G	____		57.	D	____	
8.	J		____	33.	D		____	58.	J		____
9.	A	____		34.	H	____		59.	A		____
10.	H		____	35.	C	____		60.	G		____
11.	A		____	36.	F		____	61.	B	____	
12.	J	____		37.	C		____	62.	F	____	
13.	C	____		38.	J	____		63.	C	____	
14.	F		____	39.	B	____		64.	G	____	
15.	C		____	40.	H		____	65.	B		____
16.	H	____		41.	A		____	66.	H		____
17.	D	____		42.	J	____		67.	A		____
18.	G	____		43.	B	____		68.	G	____	
19.	A	____		44.	H	____		69.	C	____	
20.	H	____		45.	D		____	70.	H	____	
21.	D		____	46.	F	____		71.	C		____
22.	G	____		47.	C		____	72.	G		____
23.	D		____	48.	F	____		73.	D		____
24.	G		____	49.	B	____		74.	J	____	
25.	D	____		50.	F		____	75.	D		____

Number Correct (Raw Score) for:

Usage/Mechanics (UM) Subscore Area ____ (40)

Rhetorical Skills (RH) Subscore Area ____ (35)

Total Number Correct for English Test (UM + RH) ____ (75)

* UM = Usage/Mechanics
RH = Rhetorical Skills

Test 2: Mathematics—Scoring Key

	Key	Subscore Area*		
		EA	AG	GT
1.	B	____		
2.	H	____		
3.	E	____		
4.	J	____		
5.	C			____
6.	H	____		
7.	C			____
8.	J		____	
9.	A	____		
10.	G	____		
11.	D			____
12.	H			____
13.	C		____	
14.	K		____	
15.	D	____		
16.	G	____		
17.	A	____		
18.	H	____		
19.	E		____	
20.	H		____	
21.	D			____
22.	F		____	
23.	E	____		
24.	J		____	
25.	C	____		
26.	G	____		
27.	B	____		
28.	H			____
29.	D			____
30.	K	____		
31.	B		____	
32.	J			____
33.	E		____	
34.	K		____	
35.	E		____	
36.	G			____
37.	B			____
38.	F		____	
39.	B			____
40.	F			____
41.	D			____
42.	K	____		
43.	A	____		
44.	G			____
45.	C	____		
46.	G			____
47.	D			____
48.	H	____		
49.	D		____	
50.	F		____	
51.	D			____
52.	H	____		
53.	E		____	
54.	F	____		
55.	D		____	
56.	G		____	
57.	E	____		
58.	H		____	
59.	B	____		
60.	F			____

Number Correct (Raw Score) for:

Pre-Alg./Elem. Alg. (EA) Subscore Area	____ (24)
Inter. Alg./Coord. Geo. (AG) Subscore Area	____ (18)
Plane Geo./Trig. (GT) Subscore Area	____ (18)
Total Number Correct for Math Test (EA + AG + GT)	____ (60)

* EA = Pre-Algebra/Elementary Algebra
AG = Intermediate Algebra/Coordinate Geometry
GT = Plane Geometry/Trigonometry

Test 3: Reading—Scoring Key

		Subscore Area*				Subscore Area*				Subscore Area*	
	Key	SS	AL		Key	SS	AL		Key	SS	AL
1.	B		______	15.	B	______		29.	B		______
2.	H		______	16.	G	______		30.	J		______
3.	A		______	17.	D	______		31.	B	______	
4.	J		______	18.	F	______		32.	J	______	
5.	D		______	19.	D	______		33.	C	______	
6.	F		______	20.	G	______		34.	H	______	
7.	A		______	21.	A		______	35.	A	______	
8.	G		______	22.	F		______	36.	G	______	
9.	C		______	23.	C		______	37.	C	______	
10.	G		______	24.	F		______	38.	F	______	
11.	C	______		25.	B		______	39.	B	______	
12.	F	______		26.	J		______	40.	G	______	
13.	C	______		27.	D		______				
14.	F	______		28.	F		______				

Number Correct (Raw Score) for:

Social Studies/Sciences (SS) Subscore Area ______ (20)

Arts/Literature (AL) Subscore Area ______ (20)

Total Number Correct for Reading Test (SS + AL) ______ (40)

* SS = Social Studies/Sciences
AL = Arts/Literature

Test 4: Science Reasoning—Scoring Key

	Key			Key			Key	
1.	B	______	15.	C	______	29.	D	______
2.	J	______	16.	F	______	30.	G	______
3.	B	______	17.	D	______	31.	B	______
4.	J	______	18.	H	______	32.	G	______
5.	A	______	19.	D	______	33.	A	______
6.	F	______	20.	H	______	34.	J	______
7.	C	______	21.	A	______	35.	B	______
8.	J	______	22.	G	______	36.	H	______
9.	A	______	23.	A	______	37.	A	______
10.	J	______	24.	H	______	38.	J	______
11.	C	______	25.	A	______	39.	B	______
12.	G	______	26.	J	______	40.	H	______
13.	D	______	27.	C	______			
14.	H	______	28.	H	______			

Number Correct (Raw Score) for:

Total Number Correct for Science Reasoning Test ______ (40)

TABLE 1

Procedures Used to Obtain Scale Scores From Raw Scores for the ACT Practice Test

On each of the four tests on which you marked any responses, the total number of correct responses yields a raw score. Use the table below to convert your raw scores to scale scores. For each test, locate and circle your raw score or the range of raw scores that includes it in the table below. Then, read across to either outside column of the table and circle the scale score that corresponds to that raw score. As you determine your scale scores, enter them in the blanks provided on the right. The highest possible scale score for each test is 36. The lowest possible scale score for any test on which you marked any response is 1.

Next, compute the Composite score by averaging the four scale scores. To do this, add your four scale scores and divide the sum by 4. If the resulting number ends in a fraction, round it off to the nearest whole number. (Round down any fraction less than one-half; round up any fraction that is one-half or more.) Enter this number in the blank. This is your Composite score. The highest possible Composite score is 36. The lowest possible Composite score is 1.

ACT Test **Your Scale Score**

English ____________

Mathematics ____________

Reading ____________

Science Reasoning ____________

Sum of scores ____________

Composite score (sum ÷ 4) ____________

NOTE: If you left a test completely blank and marked no items, do not list a scale score for that test. If any test was completely blank, do not calculate a Composite score.

Scale Score	**Raw Scores**				**Scale Score**
	Test 1 English	**Test 2** Mathematics	**Test 3** Reading	**Test 4** Science Reasoning	
36	75	60	40	40	**36**
35	74	—	39	—	**35**
34	73	—	38	39	**34**
33	72	59	37	—	**33**
32	—	57–58	—	—	**32**
31	71	55–56	36	38	**31**
30	69–70	53–54	35	37	**30**
29	67–68	51–52	—	36	**29**
28	66	49–50	33–34	35	**28**
27	63–65	46–48	32	34	**27**
26	61–62	44–45	31	33	**26**
25	59–60	41–43	30	31–32	**25**
24	56–58	39–40	28–29	29–30	**24**
23	54–55	37–38	27	27–28	**23**
22	51–53	35–36	25–26	25–26	**22**
21	49–50	33–34	24	23–24	**21**
20	46–48	31–32	22–23	21–22	**20**
19	43–45	28–30	21	19–20	**19**
18	40–42	25–27	20	17–18	**18**
17	38–39	22–24	19	15–16	**17**
16	35–37	18–21	17–18	13–14	**16**
15	32–34	15–17	16	12	**15**
14	29–31	12–14	15	10–11	**14**
13	26–28	10–11	13–14	09	**13**
12	23–25	08–09	12	08	**12**
11	20–22	06–07	10–11	07	**11**
10	17–19	05	08–09	06	**10**
9	15–16	04	07	05	**9**
8	12–14	—	06	04	**8**
7	10–11	03	05	03	**7**
6	08–09	—	—	02	**6**
5	06–07	02	04	—	**5**
4	05	—	03	—	**4**
3	03–04	01	02	01	**3**
2	02	—	01	—	**2**
1	00–01	00	00	00	**1**

TABLE 2

Procedures Used to Obtain Scale Subscores From Raw Scores for the ACT Practice Test

For each of the seven subscore areas, the total number of correct responses yields a raw score. Use the table below to convert your raw score to scale subscores. For each of the seven subscore areas, locate and circle either the raw score or the range of raw scores that includes it in the table below. Then, read across to either outside column of the table and circle the scale subscore that corresponds to that raw score. As you determine your scale subscores, enter them in the blanks provided on the right. The highest possible scale subscore is 18. The lowest possible scale subscore is 1.

If you left a test completely blank and marked no items, do not list any scale subscores for that test.

ACT Test	Your Scale Subscore
English	
Usage/Mechanics (UM)	____________
Rhetorical Skills (RH)	____________
Mathematics	
Pre-Algebra/Elem. Algebra (EA)	____________
Inter. Algebra/Coord. Geometry (AG)	____________
Plane Geometry/Trigonometry (GT)	____________
Reading	
Social Studies/Sciences (SS)	____________
Arts/Literature (AL)	____________

Scale Subscore	**Raw Scores**							**Scale Subscore**
	Test 1 English		**Test 2 Mathematics**			**Test 3 Reading**		
	Usage/ Mechanics	Rhetorical Skills	Pre-Algebra/ Elem. Algebra	Inter. Algebra/ Coord. Geometry	Plane Geometry/ Trigonometry	Social Studies/ Sciences	Arts/ Literature	
18	39–40	35	23–24	18	18	20	20	**18**
17	38	34	22	—	—	19	19	**17**
16	36–37	33	21	17	17	18	18	**16**
15	34–35	32	20	16	16	17	17	**15**
14	33	30–31	19	14–15	14–15	16	16	**14**
13	31–32	28–29	17–18	12–13	13	14–15	15	**13**
12	29–30	25–27	16	11	11–12	13	14	**12**
11	27–28	23–24	14–15	09–10	09–10	12	13	**11**
10	25–26	20–22	13	08	07–08	10–11	12	**10**
9	23–24	17–19	11–12	06–07	06	09	11	**9**
8	20–22	15–16	09–10	05	04–05	08	10	**8**
7	18–19	12–14	08	04	—	07	09	**7**
6	15–17	10–11	06–07	—	03	06	07–08	**6**
5	12–14	08–09	04–05	03	02	05	06	**5**
4	09–11	06–07	03	02	—	04	05	**4**
3	07–08	04–05	02	01	01	03	04	**3**
2	04–06	02–03	01	—	—	02	02–03	**2**
1	00–03	00–01	00	00	00	00–01	00–01	**1**

TABLE 3
Norms Table for the ACT Practice Test

Use the norms table below to determine your estimated percent at or below for each of your scale scores.

In the far left column, circle your scale score for the English Test (from page 59). Then read across to the percent at or below column for that test; circle or put a check mark beside the corresponding percent at or below. Use the same procedure for each test (from page 59) and subscore area (from page 60). You may find it easier to use the right column of scale scores for your Science Reasoning Test and Composite scores.

As you mark your percents at or below, enter them in the blanks provided at the right.

You may also find it helpful to compare your performance with the national mean (average) score for each of the four tests, subscore areas, and the Composite as shown at the bottom of the norms table.

ACT Test		Your Estimated Percent At or Below on Practice Test
English		
Usage/Mechanics		
Rhetorical Skills		
Mathematics		
Pre-Algebra/Elem. Alg.		
Alg./Coord. Geometry		
Plane Geometry/Trig.		
Reading		
Soc. Studies/Sciences		
Arts/Literature		
Science Reasoning		
Composite		

National Distributions of "Percent At or Below" for ACT Test Scores
1996 HS Graduates Tested on National Test Dates

Score	ENGLISH	Usage/Mechanics	Rhetorical Skills	MATHEMATICS	Pre-Algebra/Elem. Alg	Alg./Coord. Geometry	Plane Geometry/Trig.	READING	Soc. Studies/Sciences	Arts/Literature	SCIENCE REASONING	COMPOSITE	Score
36	99			99				99			99	99	36
35	99			99				99			99	99	35
34	99			99				98			99	99	34
33	99			99				96			99	99	33
32	99			99				95			99	99	32
31	98			98				93			98	99	31
30	97			97				92			97	97	30
29	96			96				90			95	96	29
28	93			94				87			93	93	28
27	90			91				84			91	91	27
26	86			88				80			88	87	26
25	81			84				75			83	83	25
24	76			80				72			77	78	24
23	71			75				66			71	72	23
22	65			69				61			65	65	22
21	59			64				54			56	58	21
20	53			58				47			48	50	20
19	46			50				40			40	42	19
18	39	99	99	42	99	99	99	35	99	99	31	34	18
17	33	99	99	34	98	99	98	28	98	96	24	26	17
16	27	97	98	24	96	98	98	23	95	89	16	19	16
15	21	93	96	16	92	96	96	18	91	84	10	13	15
14	15	88	91	09	87	93	93	14	85	79	06	08	14
13	10	81	84	04	81	88	85	10	78	71	03	04	13
12	07	73	75	02	74	83	78	06	72	62	01	01	12
11	04	65	64	01	65	70	65	03	63	52	01	01	11
10	02	56	53	01	53	61	53	02	54	43	01	01	10
09	01	46	38	01	41	43	39	01	38	35	01	01	09
08	01	36	27	01	30	28	25	01	28	27	01	01	08
07	01	25	17	01	19	17	12	01	20	20	01	01	07
06	01	16	08	01	10	10	08	01	11	13	01	01	06
05	01	08	04	01	05	07	04	01	06	08	01	01	05
04	01	03	01	01	02	04	03	01	03	04	01	01	04
03	01	01	01	01	01	02	01	01	01	02	01	01	03
02	01	01	01	01	01	01	01	01	01	01	01	01	02
01	01	01	01	01	01	01	01	01	01	01	01	01	01
Mean	20.3	10.1	10.4	20.2	10.4	10.0	10.4	21.3	10.6	11.1	21.1	20.9	
S.D.	5.4	3.4	2.9	4.8	3.3	3.0	2.9	6.1	3.4	3.9	4.6	4.7	

Note: These norms are the source of national and state norms printed on ACT Assessment score reports during the 1996-97 testing year. Sample size 924,663

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To Register for the ACT

You can get an ACT Assessment student registration packet from your high school counselor. If your high school cannot help you, write or call:

ACT Registration Department
P.O. Box 414
Iowa City, IA 52243-0414
319/337-1270

A copy of the booklet *Registering for the ACT Assessment* is included in the registration packet. That booklet describes the steps you must take to register for the ACT.

Visit ACT's Home Page at:
http://www.act.org

LATINO ELIGIBILITY TASK FORCE
(Report Number Five)

Latino Student Eligibility and Participation in the University of California
YA BASTA!

REPORT NUMBER Five OF THE
LATINO ELIGIBILITY TASK FORCE

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UNIVERSITY OF CALIFORNIA
LATINO ELIGIBILITY TASK FORCE

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July 1997

UNIVERSITY OF CALIFORNIA
LATINO ELIGIBILITY TASK FORCE
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Strategic Interventions in Education
Expanding the Latina/Latino Pipeline

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Executive Summary

THE SUCCESSFUL COMPLETION OF A UNIVERSITY OF CALIFORNIA EDUCATION is not common for members of Latino families, even as increasing numbers of Latino students populate our state's public and private schools—1,200,000 in 1985, 2,300,000 in 1995, and projected to reach 3,100,000 by 2010. Less than 4 percent of Latino high school graduates in 1990 were fully eligible for admission to the university compared to an overall average of 12.3 percent.

The Latino Eligibility Task Force—established by then-President Gardner in 1992 and continued by Presidents Peltason and Atkinson—consists of faculty and administrators from each UC campus assisted by several units within the Office of the President. In 1995, the University of California Regents reaffirmed in Resolution SP-1 the university's long-term commitment to attract, enroll, and graduate a student body as diverse as the population of California. The Task Force was further charged to recommend means to achieve full diversity within the context of SP-1.

The Task Force has edited three volumes of current research, a series of working papers, and five reports to the Regents. It undertook a comprehensive Anchor study, to fill research gaps. Members of the Task Force also visited each UC campus in 1992-93 and again in 1994-95, learning first-hand from well attended forums for students, faculty, and staff the obstacles faced by Latinos on their path to college matriculation.

The statewide context that frames Latino student UC eligibility and participation has been studied and the facts have become increasingly clear to the Task Force:

- Latino students and families place great value in higher education.
- Latino families are cohesive in spite of extreme poverty and growing urbanization.
- Latino families are traditional but allow women to pursue higher education.
- Latino students represent a large and growing population in this state.
- Latino college students come from lower socioeconomic strata.
- Latino college students come predominantly from public high schools.
- Few Latino community college students transfer to the University of California.
- Latino retention and graduation rates vary little from the UC average.
- A downward trend is developing regarding Latino student participation in UC.
- A corps of UC outreach programs substantially increase UC eligibility for Latino and other underrepresented student participants.
- UC eligibility of Latino students can be greatly increased by eliminating the SAT.

Immediate and Short-term Recommendations

1. Without reducing admissions standards, immediately change specific University of California policies and practices that may negatively affect Latino student eligibility, application, admissions, and enrollment.
    - Eliminate the SAT in determining eligibility.
    - Encourage campuses to create admissions alternatives.
    - Expand admissions opportunities for community college transfers.
2. Expand the flow of relevant information in Spanish and English to Latino high school personnel, parents, and students.

Intermediate and Long-term Recommendations

1. Coordinate universitywide and campus outreach plans with those of the K-12 schools, community colleges, and local organizations and businesses in order to better prepare and recruit promising disadvantaged students for higher education.
2. Offer new resources to University of California programs and research units to establish or expand research on enhancing Latino participation, especially by focusing on improving K-12 teaching and curriculum directed at Latino students.
3. Proceed to develop programs for the 10th University of California campus in Merced.
    - Promote links with community colleges, given the high proportion of Latino community college students in the Central Valley, and seek out linkages with other higher education segments and with K-12.
    - Create academic and professional emphases which will promote Latino student participation.
    - Develop off-site instructional opportunities in Fresno and other heavily populated areas within the Central Valley.
4. Maximize the legacy of this Task Force.
    - Sponsor a set of regionally based intersegmental institutes on improving Latino eligibility.
    - Monitor participation of Latino and other underrepresented groups in the UC.
    - Fund longitudinal studies of Latino K-12 students.

Introduction

The high family aspirations have been washed away by the cold-water reality of bad schools, cultural and social class discrimination, and a great, but unwelcoming university.

As Latino students and faculty share with other Latinos in California anecdotes or stories of their struggle to participate in higher education, heads begin to nod suggesting, "that happened to me or my family members." It is far too common a reaction. *Como agua para chocolate*—like water for chocolate, they just didn't seem to measure up to the real thing. The high family aspirations have been washed away by the cold-water reality of bad schools, cultural and social class discrimination, and a great, but unwelcoming university. We have a devastating disjuncture and California Latinos are concluding: "Enough is Enough." This might best frame the theme of this last report of this Task Force: ***THINGS CANNOT REMAIN THE WAY THEY ARE. YA BASTA!!!!***

At the core of addressing the-way-it-can-be for Latinos in the University of California from the-way-it-is are several presuppositions:

- Access to formal education continues to hold the promise of enhanced physical, economic, social and cultural well being.
- To honor diversity is to appreciate the social complexity in which we live—it also fosters a sense of individual integrity and respect for the context in which individuals have developed.
- To unify with others in this nation is absolutely necessary, but to insist upon it without embracing diversity is to destroy that which will allow that unity—individual and collective dignity.

... the university's success in accomplishing this broader mission depends to a large extent on meeting the needs of student cohorts who are becoming exceedingly diverse.

- To expand our understanding of the issues through acquisition of new knowledge; and
- To recommend policies, programs, and other actions designed to improve future eligibility.

The fundamental mission of the university is to conduct research and transmit knowledge and related services to California students and citizens. The university in turn relies on colleagues in the K-12 schools and community colleges to send it a prepared student body (California Master Plan for Higher Education, 1959). However, it was former UC President Clark Kerr who called in 1963 for "the modern university to look outward and to reality,"[1] while A. Bartlet Giamatti, past president of Yale University, warned that universities could not choose to be sanctuaries from society, but must become tributaries to it (1987),[2] and more recently, Henry Cisneros, then-secretary of the U.S. Department of Urban and Housing Development, concluded that universities have become so integral to our society that "they cannot afford to become islands of influence, self-importance and horticultural beauty in seas of squalor, violence and despair."[3]

But the university's success in accomplishing this broader mission depends to a large extent on meeting the needs of student cohorts who are becoming exceedingly diverse. Latinos and other underrepresented students must struggle to overcome numerous obstacles and their collegiate experiences are much less satisfactory than those of members of fully represented student groups. For Latinos and other underrepresented groups, the facts are very clear in this regard:

- Their education does not prepare them as well as fully represented groups;
- Their knowledge about transferring from community colleges to four-year institutions is more limited;
- They have less first-hand knowledge about what careers are available to them;
- The language, norms, and values of their communities are often dramatically different from those at the university; and

---

[1] Kerr, C. (1963) *The Uses of the University.* Cambridge, MA.: Harvard University Press.

[2] Giamatti, A.B. (1981) *The University and the Public Interest.* NY: Atheneum Press.

[3] Cisneros, H. (1995) *The University and the Urban Challenge.* Rockville, MD: Aspen Systems Corporation.

Background

For Latino families, successful completion of a University of California education is not common even as increasing numbers of Latinos (Figure 1) and Latino students (Figure 2) populate our state's public and private schools—1,200,000 in 1985, 2,300,000 in 1995 and projected to reach 3,100,000 by 2005. ("Latino" in this report refers to individuals whose families originated recently or historically in Mexico, the Caribbean, Central and South America.) Less than 4 percent of Latino high school graduates are fully eligible for admission to the university compared to an overall average of 12.3 percent (Figure 3). This profound underrepresentation distinctly threatens the economic and social fabric of our state and nation because the Latino population is growing so rapidly.

The college years represent one of society's last opportunities to prepare the next generation of citizens— those who will lead its institutions and shape future generations.

In the last decade there has been a continued concern over the low participation of Latino and other underrepresented students in higher education (California Postsecondary Education Commission, 1986, 1991; *Making The Future Different: Report to the Task Force on Black Student Eligibility*, 1991; Science, 1992; L. Scott Miller, *An American Imperative: Accelerating Minority Educational Achievement*, 1995). These studies document that not only are fewer of these students eligible to attend college, but few of the eligible high school graduates actually enroll. There is consensus among a diverse group of analysts that it is in everyone's best interest to correct the underrepresentation as soon as possible. The college years represent one of society's last opportunities to prepare the next generation of citizens—those who will lead its institutions and shape future generations. In a state where the Latino population continues to grow rapidly, the urgent need to address underrepresentation is particularly significant.

The Latino Eligibility Task Force—created by President David P. Gardner on August 25, 1992, and continued by President Jack Peltason and more recently President Richard Atkinson—consists of faculty and administrative staff from each campus of the University of California assisted by several units within the Office of the President. The Task Force has its roots in its predecessor, the Task Force on Black Student Eligibility and was commissioned to carry out three specific charges:

- To develop a clear understanding of the issues associated with the low rate of Latino eligibility through the assessment of existing research and programs inside and outside the university;

- Discriminatory treatment because of their ethnic/racial, class, and gender status is an added burden in constructing their identities and achieving their academic and life goals.

The Latino Eligibility Task Force considered these factors in assessing the efforts of the university to serve a larger number of Latino students. Additionally, the University of California Regents in 1995 reaffirmed in Resolution SP-1 the university's long-term commitment to attract, enroll, and graduate a student body as diverse as the population of California. The Latino Eligibility Task Force thus was further charged to recommend means to achieve full diversity within the guidelines of SP-1. In particular, the Task Force examined the aspirations of the students, their families, and communities, as well as analyzing current university activities, and the ways in which the university can best organize its human, intellectual, and physical resources to meet the needs of the Latino community.

What The Task Force Has Learned

The analyses show that the students who graduate in these schools are very resilient, having overcome numerous social, environmental, and economic obstacles to graduate from high school (most of these school districts have very high drop-out rates).

The Task Force began by systematically reviewing the scholarly research on minority student K-12 achievement, and their eligibility and participation in higher education. As part of these activities, the Task Force published its first working paper, a 60 page bibliography. This review of the literature indicated gaps which were addressed by a three-pronged research strategy.

1. The Task Force organized a research symposium in 1993 and published the papers presented there as its first monograph.
2. Augmentation/action studies were commissioned, the first set of which has now been published as the Task Force's second monograph. The second set of action studies has been completed and when published will become the third monograph.
3. An extensive and unprecedented study of Latino high school graduates was undertaken to develop a unique data base to "anchor" further Task Force and general scholarly investigation of the issues.

This research undertaking, named the "Anchor" study, was designed and overseen by the Task Force itself. It is based on a comprehensive set of school and student data utilizing ten high schools that graduate the most number of Latino students, weighted by geographical distribution to insure rural/urban representation. These schools are located in Los Angeles, the Central Valley, San Jose, and the Central Coast. In each school, a 20 percent sample of 1994 and 1995 seniors was selected, producing a total of 1,386 student participants in the study.

Although the majority of students in these high schools are Latinos, there are also a number of Asian, African American, and white students included in the study. The main focus of the comprehensive student questionnaire, which sought to fill research gaps identified previously, was to distinguish among achievement motivation, perceived academic support from high school personnel and family, and instrumental knowledge of UC eligibility requirements.

The analyses show that the students who graduate in these schools are very resilient, having overcome numerous social, environmental, and economic obstacles to graduate from high school (most of these school districts have very high drop-out rates). These students also have high achievement motivation and come from families that are supportive of educational achievement. Yet few enroll in the University of California or other postsecondary institutions.

The second part of the Anchor study comprised an evaluation of these students' transcripts to learn directly how many students were eligible for the University of California and what were their characteristics. Course-taking patterns that contribute to eligibility will also be analyzed.

The third part of the study was a telephone recontact survey (of the original 1,386 respondents), conducted in 1996. The surveyors were able to contact 890 of these students to learn their current educational status and to assess the factors that contributed to their decisions. The data allow for documentation of these students' educational decisions after graduation, a type of study not conducted before.

The data allow for documentation of these students' educational decisions after graduation, a type of study not conducted before.

The final portion of the Anchor study developed from a survey of university campus climate and post-graduate plans. More than 300 UCSC Latino and other seniors (1994 and 1995) were questioned about factors contributing to their persistence. These data were augmented by interviews with 16 focus groups who discussed campus climate, perceptions of curriculum diversity, relationships with faculty, and housing conditions.

The Task Force has produced two edited volumes of the most important research on the Latino educational condition. A third volume is in press. They are *The Educational Achievement Of Latinos: Barriers And Successes*, 1994, *Strategic Interventions in Education: Expanding the Latina/Latino Pipeline*, 1996, and *Latino Academic Achievement*, 1997. A fourth volume, *Students' Pathways To Higher Education: Results From the Anchor Study*, will be published within the next year. Four working papers (in addition to the bibliography) and four reports to the Regents, in English and Spanish, have been published as well.

However, the Task Force's understanding of the factors affecting Latino students was not based solely on these research explorations. Task force representatives visited each UC campus in 1992-93 and again in 1994-95. They learned first-hand from well attended forums for students, faculty, and staff the obstacles faced by Latinos in the path to college matriculation.

Facts

THE TASK FORCE FOUND IN ITS VISITS AND ELSEWHERE THAT TOO OFTEN A phenomenon is understood on either naive or imperfect grounds, leading to a type of popular wisdom that often reaches mythic proportions. Popular misunderstanding of Latino student eligibility and participation is a case in point. To correct this tendency, the Task Force now presents a set of facts about Latino students, utilizing current research data that has focused its own work and practice.

Latino students and families place great value in higher education.
Latino parents express great interest in education. For example, in the 1997 survey by the California Higher Education Policy Center, 65 percent of Latino respondents agreed that *"there are many people who are qualified to go to college but don't have the opportunity."* Just 50 percent of non-Latino respondents responded affirmatively to this item.

Latino families are cohesive in spite of extreme poverty and growing urbanization.
Compared to other groups, Latino families, as a whole, are significantly larger but have lower divorce rates. Compared to non-Latinos, Latino males have higher rates of employment, and substantial numbers of Latinos reside in both rural and urban areas. However, cohesive Latino family structures and strong work ethics are not translating into educational attainment for their children, as parents have a right to expect. Nor are these "conventional" families able to avert poverty. Most Latino students come from families who are part of the working poor.[4]

Latino families are traditional but allow women to pursue higher education.
Latino families have very strong values that sometimes discourage *any* of their young adult members from living far from them. However, these families simultaneously express a strong commitment to education and the opportunities that it can provide. In the last four years, more Latinas than Latinos have made application to and been admitted to the University of California. In 1996, nearly 60 percent of Latino applicants were female, about the same percentage as participates in the Early Academic Outreach Program.[5]

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[4] See LEFT Report Number One, p.31, Fig. 19 and 20.

[5] E-mail from J. Small, UCOP Student Academic Services, May, 1997

Latino students represent a large and growing population in this state.

The current cohort of UC Latino students represents a fraction of a burgeoning Latino population that in 1990 constituted 7,700,000 (or 26 percent) of California residents, and by 2010 is projected to reach 15,400,000 (or 36 percent) of California residents (Figure 1). By 2005, Latino youth are projected to represent 50 percent of the California public K-12 enrollment and 37 percent of public high school graduates—nearly the same proportion as white high school graduates.[6]

Despite this unprecedented growth, Latino eligibility for the University of California has remained consistently low, hovering between 3 and 4 percent of high school graduates over the past decade, compared to the Master Plan standard of 12.5 percent. While it is difficult to predict future enrollments, the Task Force had earlier projected that it would take 43 years for Latino students to reach 12.5 percent eligibility, if the current, minuscule rate of eligibility growth were to persist. However, even this laggard pace could not be sustained if the current decline in UC Latino enrollments were to become a trend (Figure 4). The viability of the University of California as it now stands is threatened by this substantive shortfall in a needed college-going pool of Latino students.

The viability of the University of California as it now stands is threatened by this substantive shortfall in a needed college-going pool of Latino students.

Latino college students come from lower socioeconomic strata.

The socioeconomic status of Latino students who apply to and enroll in the University of California is representative of the state's Latino families. Six of 10 *Latino households* in California earn less than $35,000, one in four makes less than $15,000[7] annual income, the federal poverty threshold. Among the families of *Latino high school graduates* surveyed in the Anchor Study 65 percent of Mexican-descent and 72 percent of other Latino students earned less than $25,000 annually.[8] Families of *UC Latino students* average less annual income than the families of other ethnic groups and barely half of the mean for the families of white students.[9] Latino students readily qualify for and are highly dependent on financial assistance.

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[6] California Department of Finance, Demographic Research Unit, 1996 series

[7] US Census, 1990, Lookup Database: C90STF3C1

[8] Anchor Study unpublished data per A Hurtado, 1997.

[9] UCOP Student Academic Services, 1996 Admissions File.

Statewide, only 1 in 100 Latino 10th graders later enrolls as a freshman at UC.

Latino college students come predominantly from public high schools.

A small portion of Latino students comes to the University of California after attending private, mostly Catholic, high schools; more than 80 percent were previously enrolled in public schools. [10] However, there is a wide disparity among California public high schools in the proportion of their Latino graduates who attend institutions of higher education. A small number of high schools send many while the vast majority send almost none.

Statewide, only 1 in 100 Latino 10th graders later enrolls as a freshman at UC.[11] In the Anchor Study of the top 10 high schools that graduate the most number of Latinos in California, 93 percent of the Latino students who fully met UC eligibility requirements went on to four-year colleges, but only 45 percent of them enrolled in the University of California.[12]

Latinos are pursuing higher education but the community college pipeline to UC is failing them

Noting differences between female and male students in their attendance of out-of-state colleges is important for developing more effective recruitment strategies. Only 4 percent of Latino graduates in the Anchor Study enrolled outside the state.[13] But within this proportion, women were one-third less likely to leave the state for college than men, suggesting that geographic proximity may be more important to women and their families. Additionally, women were five times more likely to attend private colleges in California then were men, so the characteristics of those schools that attract women need to be better understood by UC recruiters.

Few Latino community college students transfer to the University of California.

In each of the last four years, over 180,000 Latino community college students in California completed courses eligible for transfer credit to the University of California. The Anchor Study found that 45 percent of the Latino high school graduates sampled who went on to college, enrolled in California Community Colleges. Latinos are pursuing higher education but the community college pipeline to UC is failing them: only 1,336 Latino students transferred to UC from community colleges in 1994, only 1,160 are projected to enroll in fall 1997, if historical application-to-enrollment ratios continue (Figure 5). And equally telling, UC applications from Latino transfer students have dropped by 22 percent since 1994.

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[10] UCOP Student Academic Services, 1997.

[11] UCOP Student Academic Services: S. Geiser, 1996.

[12] Anchor Study Recontact Survey per A. Hurtado, 1997

[13] Ibid.

Latino retention and graduation rates vary little from the University of California average.

Retention rates after two years for UC Latino students are not substantially different from those for white students (Figure 6). Significantly fewer Latinos graduate after four years than whites, but overall graduation rates after six years are more equivalent. Latino students, on average, require an additional year to graduate (Figure 7).

...the proportion of Latinos admitted to UC declined steadily in each of the last two years.

A downward trend is developing regarding Latino student participation in the University of California.

The number of Latino applicants has not kept pace with growing Latino K-12 enrollments and the rapidly increasing number of Latino high school graduates. Just 9 percent of Latino high school graduates applied to UC in 1994-95 compared to 10 percent in 1989-90. While Latino student applications declined, overall applications to UC increased by 6 percent.[14] Furthermore, the proportion of Latinos admitted to UC declined steadily in each of the last two years.

In fall 1996, Latino freshman enrollments dropped by 7 percent compared to fall 1995, while overall freshman enrollments were up 4 percent. Berkeley, San Diego, and especially Santa Barbara enrolled more Latino freshmen, but all the other campuses enrolled fewer. For fall 1998, UCLA has predicted a 50 to 70 percent drop in enrollments of Latino and other underrepresented students, if selection were to include no weighting for race or ethnicity. UC Berkeley has developed similar projections (Figure 4).

Unmistakable evidence shows that a corps of UC outreach programs increase the academic achievement, UC eligibility and participation of Latino students.

Unmistakable evidence shows that a corps of UC outreach programs increase the academic achievement, UC eligibility and participation of Latino students—we know what works.

These programs target underrepresented students in disadvantaged schools. They place a premium on high expectations, build on the linguistic and cultural background of students, utilize UC students or community based mentors, depend on teacher and school partnerships, and expose students to challenging curriculum. Throughout, they provide instrumental knowledge and assistance to educational personnel, students and parents regarding the logistics of applying to, obtaining admissions in, and preparing for success at colleges and universities.

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[14] UC Central Application Processing Report, January, 1997

UC eligibility of Latino students can be greatly increased by eliminating the SAT. According to a simulation of eligibility relying only on Grade Point Average (GPA) requirements, without aptitude test scores, the proportion of Latino high school graduates achieving eligibility would rise by 59 percent (from 3.9 to 6.2 percent) (Figure 8). Overall eligibility would also rise, but not as steeply, to 16.9 percent which is above the current master plan limit of 12.5 percent. However, the startling increase for Latinos illustrates the magnitude of the negative impact of the SAT on Latino student eligibility.

Recommendations

TAKEN TOGETHER, THE FACTS AND FINDINGS PRESENTED IN THIS AND earlier Task Force reports display the overall context in which far too many Latino students find themselves academically underprepared to achieve university eligibility. The issues surrounding eligibility are complex, and substantive solutions will require both short- and longer-term analyses, findings, and recommendations, as well as institutional resolve and responsiveness.

Permeating the facts and findings, though, is the implicit, but imperative call for UC action at once to improve the representation of Latino students.

Whatever the particular solutions, the fundamental strategy must be to greatly expand academic development programs and outreach. In turn, Latino students must take full advantage of enlarged programs and prepare themselves to study overtime in order to make up the deficits generated by resource-poor families, communities, and schools. The intermediate and long-term recommendations below reflect this reality.

Permeating the facts and findings, though, is the implicit, but imperative call for UC action at once to improve the representation of Latino students. Therefore, the first set of recommendations, labeled as immediate and short-term, addresses the urgent need to intercede with substantive and robust policy reconfigurations regarding the University of California itself.

Immediate and Short-term Recommendations

1. Without reducing admissions standards, immediately change specific University of California policies and practices that may negatively affect Latino student eligibility, application, admissions, and enrollment.

A. *Eliminate the SAT in determining eligibility.*

In 1926, the College Board introduced a new college entrance test to its repertoire of subject area exams, the Scholastic Aptitude Test (SAT). It did so to meet the mission of ensuring fairness in higher education admissions decisions. Numerous studies have questioned the SAT's ability to predict college success for minority students and therefore to achieve this important SAT mission. Equally pressing concerns are the data associations between low test scores and low levels of parental education and income.[15] The SAT seems to have been a barrier for eligibility and participation in the University of California for Latinos, women, and other disadvantaged students, since it was incorporated into UC admissions requirements in 1968.[16] Eliminating the SAT requirement

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[15] See, for example, L. Scott Miller, *An American Imperative: Accelerating Minority Educational Advancement*. Yale University Press, 1995, Ch. 5-6 and p. 156 particularly.

[16] John A. Douglas, *Setting the Conditions of Undergraduate Admissions: The Role of University of California Faculty in Policy and Process*. Report of the Task Force on Governance, UC Academic Senate, February, 1997.

Eliminating the SAT requirement would greatly expand Latino student eligibility without compromising the integrity of UC's ability to select those students who are most likely to succeed in its programs.

would greatly expand Latino student eligibility without compromising the integrity of UC's ability to select those students who are most likely to succeed in its programs. The best predictor for all students' success in higher education is their GPA in "a-f-like" rigorous courses, not a score on a standardized test.

Other indicators of high school performance such as the Golden Gate exam and related California educational reform instruments should be considered as replacements for the SAT. These student assessments would be aligned with California school reform efforts which include subject matter standards, curriculum frameworks and school accountability procedures coupled with related efforts regarding the preparation of professional educators able to teach to high standards. The Task Force specifically recommends the creation of a faculty committee with expertise in student assessment that would report to the Board of Admissions and Relations with Schools (BOARS) on the feasibility of eliminating the SAT and replacing it with alternatives which meet the need for the UC to utilize reliable, valid, and fair assessments for determining eligibility within the next academic year.

B. *Encourage campuses to create admissions alternatives.*

Especially needed are initiatives which stimulate local institutions to work with UC campuses in achieving broader representation of Latino students. Successful programs would address the contextual complexities of regional and state education communities that are not presently producing sufficient UC student participation. The Task Force specifically recommends the development and expansion of programs at each campus with attributes such as those in UC Riverside's Guaranteed Admissions Program which focuses on high schools aiming to produce more UCR applicants within the guidelines for UC eligibility, and UC Santa Cruz's Karl S. Pister leadership opportunity scholarships awarded annually by the chancellor to 13 community college transfer students, from the nominations of the 13 participating community college presidents in the region.

C. *Expand admissions opportunities for community college transfers.*

Latino community college transfer students, for the most part, are affected by many of the same economic and social constraints as their high school peers. However, applications from transfer students are often not processed by the university until after freshman applications. Final offers of admissions, financial aid, and housing are not announced until late spring or early summer. Freshman and transfer admissions timetables should be synchronized. The current lag—along with inadequate outreach, information, advice, and orientation specific to transfer students—may account for much of the extremely low application and enrollment rates.

Allowing community college students to apply in their freshman year for provisional junior year admission would likely increase application rates considerably. This type of early admissions program would allow participating students to be identified and counseled about educational opportunities at the University of California. The Task Force specifically recommends an increased allocation for those campus transfer centers determined to increase underrepresented student participation and funding to those campuses wishing to experiment with guaranteed transfer agreements.

Allowing community college students to apply in their freshman year for provisional junior year admission would likely increase application rates considerably.

2. Expand flow of relevant information in Spanish and English to Latino students and parents, and school personnel.

The parents of Latino students in California are predominantly first-generation immigrant Spanish speakers, with limited personal experience related to college preparation. Successful recruitment strategies require effective communication with these parents and prospective students. Researchers uniformly report that Latino parents and students perceive education in general and higher education in particular as the means to social and economic success. However, to fulfill these high aspirations, Latino families must receive information that directly addresses issues important to them, and they need encouragement from responsive teachers, counselors, and university officials.

A multi-media Spanish and English campaign targeted at Latinos to encourage UC application should be developed.

A multi-media Spanish and English campaign targeted at Latinos to encourage UC application should be developed. Once in place, campuses could directly communicate with the applicants and their families about available financial support, campus safety and housing, curricular offerings, extra-curricular activities, and employment opportunities. Public Service Announcements could refer students and parents to a telephone hotline that would provide information such as necessary high school classes to complete, the amount of money available for financial aid, campus housing and safety facts, etc. Such combinations of institutional responsiveness and instrumental assistance would positively affect participation rates of Latino students. The Task Force recommends that the Office of the President create a fund of at least $500,000 to encourage the development of effective campus-developed materials.

Each of the campuses should be allocated funds to hire undergraduate students as part of an Outreach Corps whereby the students will serve as interns working with present outreach programs.

Intermediate and Long-term Recommendations

1. Coordinate universitywide and campus outreach plans with those of the K-12 schools, community colleges, and local organizations and businesses in order to better prepare and recruit promising disadvantaged students for higher education.

Each of the campuses should be allocated funds to hire undergraduate students as part of an Outreach Corps whereby the students will serve as interns working with present outreach programs. These interns will dramatically enhance the effectiveness of these programs whether the programs are sponsored by the university, the schools, or community agencies. These students will disseminate information on college, mentor college-eligible students, coordinate volunteer tutors, provide bilingual training for students' families, and assist with the college application process. Just 100 interns assigned to 100 schools for the entire year would make a dramatic difference in the number of Latino students who would apply to the University of California. In addition, UC must provide outreach to those areas not close to present UC campuses—Latinos are more dispersed around the state than other minority populations.

The Task Force recommends an expansion of outreach funding by at least $2 million to cover areas of the state not assisted by current UC outreach programs, especially from the Central Valley south to the Mexican border. These enhanced activities would benefit many students who are not now served, or only minimally so, by present outreach efforts.

2. Offer new resources to University of California programs and research units to establish or expand research on enhancing Latino participation, especially by focusing on improving K-12 teaching and curriculum directed at Latino students.

Many organized research programs, individual faculty research projects, and related activities that touch on the issues raised in this report are being conducted around the University of California. They are sponsored by extramural private and public grants, individual campus research funds, or UC Office of the President awards. Organized UC programs include the Language Minority Research Institute, UC MEXUS, California Policy Seminar, legislative funding for Latino research (SCR-43), UC Links, and the California Subject Matter projects.

The university should make use of this existing research infrastructure and its tremendous faculty expertise by creating a special competition funded at $1 million over the next three years to attract specific research projects. The funded research should explore innovative strategies linking counselors, students, parents, and teachers to university staff and faculty, and newly designed curriculum utilizing seminars, laboratory experiences, performances and formal course enrollments, as well as interactive distance-learning and the internet. It should be made clear that the resulting studies and implementation strategies may well apply to other underrepresented and disadvantaged populations.

A strong focus on local and regional issues would be important to this growing population and it would be vital to create professional schools early on that would be attractive to Latinos in the region who have lacked access to such programs.

3. Proceed to develop programs for the 10th UC campus in Merced.

A. ***Promote links with community colleges, given the high proportion of Latino community college students in the Central Valley, and seek out linkages with other higher education segments and with K-12.***

The University of California has historically drawn few students from the Central Valley. Its schools perhaps have given less emphasis to preparing students for full UC eligibility.

Yet the area is large and growing rapidly with a nearly 4,000,000 population projected for 2000 in the 11 counties south of Amador, Sacramento, and Yolo. Within that underserved region, Latinos comprise 30 percent of the population now, and are projected to become the largest ethnic group by the year 2020, with a population of 2,842,000.[17] This booming growth requires construction of a new kind of educational "pipeline" to produce sufficient numbers of UC-eligible transfer students. Further, the manner in which a new campus impacts the educational structure of the region is a very important matter in an underserved area and requires close attention from the outset of planning.

B. ***Create academic and professional emphases which will promote Latino student participation.***

A strong focus on local and regional issues would be important to this growing population and it would be vital to create professional schools early on that would be attractive to Latinos in the region who have lacked access to such programs.

C. ***Develop off-site instructional opportunities in Fresno and other heavily populated areas within the Central Valley.***

The geographical spread of the Valley and its more dispersed and less wealthy population require close-to-home higher educational opportunities. If the

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[17] All projections from Department of Finance, 1996.

An essential component of this effort must be a universitywide longitudinal student information system that includes pre-collegiate information on students who participate in outreach programs while still in K-12 and continues after they matriculate at UC.

university is to draw a well-prepared student body, it should plan to offer or facilitate preparatory instruction at satellite locations.

4. Maximize the legacy of the Latino Eligibility Task Force.

A. *Sponsor a set of regionally based intersegmental institutes on improving Latino eligibility.*

Designed to build consensus, the institutes would aim at attracting a cross-section of intersegmental partners, K-12 practitioners, and policy makers at local and state levels to working sessions in which participants would determine the next steps to expand eligibility and participation in their region.

B. ***Monitor participation of Latino and other underrepresented groups in UC.***

The distribution to the university community and a statewide audience of the published findings from the Task Force on Black Student Eligibility, the University Task Force on Student Outreach, and this Task Force has been valuable. Therefore, annual, institutionalized reports that examine underrepresented college students' participation in the UC should be prepared by the Office of the President and each campus. An essential component of this effort must be a universitywide longitudinal student information system that includes pre-collegiate information on students who participate in outreach programs while still in K-12 and continues after they matriculate at UC. The Task Force specifically recommends a yearly statewide conference, led by the University of California, to share this data with other intersegmental and K-12 partners, and the larger community.

C. ***Fund longitudinal studies of Latino K-12 students.***

The carefully collected data bases and analyses of the forthcoming CPEC UC Eligibility Study, the high school Puente Project, and the Anchor study should be made available for extension into longitudinal research projects. As one example, students contacted in the Anchor research could be interviewed individually or in focus groups at several stages. Returning over the next five years with further questions to already identified students would result in policy recommendations based on rich analyses of predictive factors, quality of university participation, and decision-making about educational futures. Such a longitudinal study would require an annual allocation of $200,000 over the five-year period, $1,000,000 in all.

Conclusion

THIS LAST REPORT OF THE UC LATINO ELIGIBILITY TASK FORCE LAYS the conceptual and factual foundations for accomplishing its stewardship charge: **To increase Latino student participation in the University of California.** This is an important mission for all Californians. It can be accomplished only with the realization that UC must seek the assistance and support of its intersegmental and K-12 school partners. The university cannot go it alone. Moreover, the task must be guided by the clearest assessment of the issues while setting aside misconceived popular wisdom, myths, and policies which thwart this mission.

It can be accomplished only with the realization that UC must seek the assistance and support of its intersegmental and K-12 school partners.

The ultimate goal is to provide many more students the opportunity to accomplish the intellectual achievements of students like Araceli Garcia, Carmen Lepe, and Jesus Castellon—our own UC graduates—who were highlighted in Report Number One. They took advantage of the wonderful opportunity of a University of California education and are now giving back some of the intellectual capital they have gained to those who will follow them.

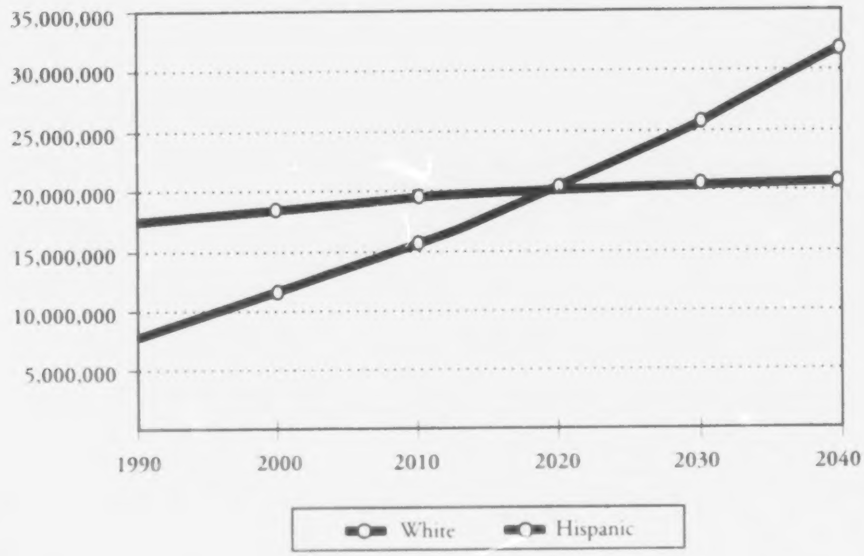
Araceli is teaching a first grade bilingual class at Pleasant View School in Porterville, California, after earning her Masters in Education and a bilingual certificate at UC Santa Cruz.

Carmen is now a Policy Associate with the national Council of La Raza in Washington, D.C. She is also enrolled in classes to complete her Masters in Public Policy at American University. Since graduating, she has won a fellowship from the Congressional Hispanic Caucus, and worked for the city of Washington, D.C. She attributes her determination to succeed to faculty and staff role models at UC Santa Cruz. In turn, she is now mentoring a UCSC intern who is enrolled at the UC Academic Center in the capital.

Jesus is currently working on his Ph.D. in curriculum and instruction at the University of Wisconsin, Madison. Meanwhile he is completing his bilingual credential requirements and is teaching unique, bilingual classes in advanced mathematics and calculus at South Division High School in Milwaukee, Wisconsin.

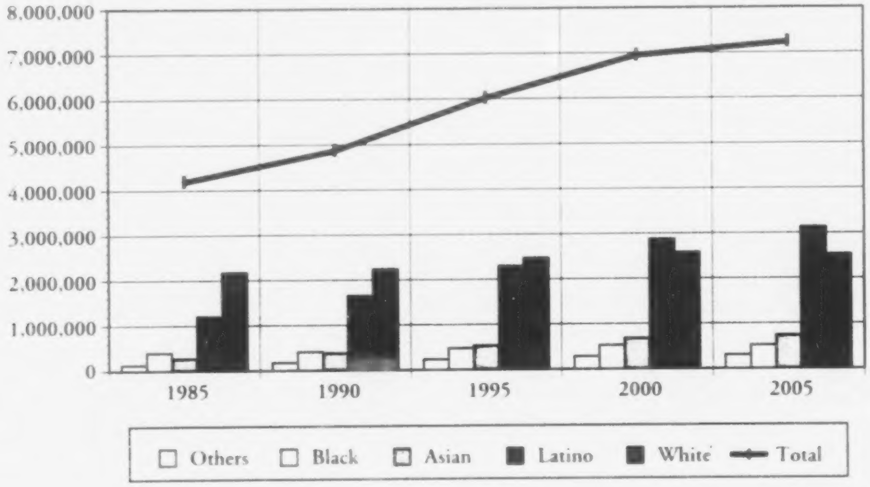
APPENDIX 1 Figures

Figure 1: California Population 1990 and Projections to 2040: Latinos and Whites



Source: California Department of Finance, Report 93 P-1

Figure 2: California K-12 Enrollment by Ethnicity: History & Projection



Source: California Department of Finance, Demographic Research Unit (9/90). 1985 Actual; 1990-2005 are projections.

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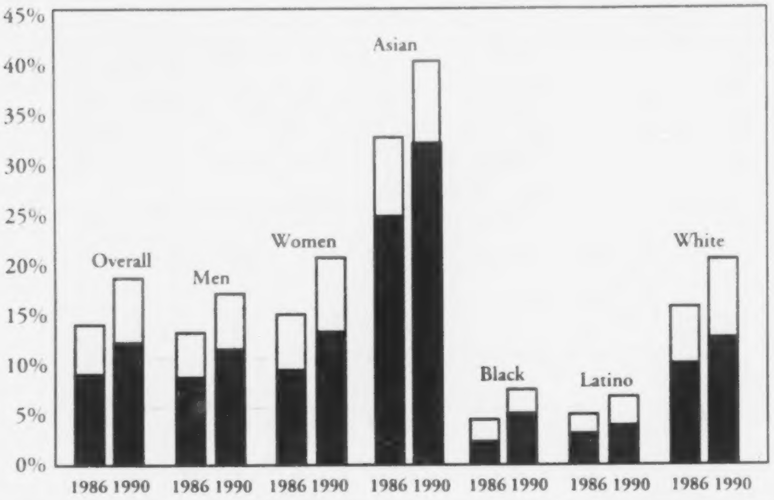

Eligible Pool	14.1	18.8	13.3	17.2	15.1	20.8	32.	40.4	4.5	7.5	5.0	6.8	15.8	20.5
Potentially Eligible ☐	5.0	6.5	4.5	5.6	5.6	7.5	7.9	8.2	2.2	2.4	1.9	2.9	5.7	7.8
Fully Eligible ■	9.1	12.3	8.8	11.6	9.5	13.3	24.	32.2	2.3	5.1	3.1	3.9	10.1	12.7

Source: Charles Ratliff & C. Douglas Barker. *Creating a Future for Urban Youth: Problems and Strategies of Collaboration.* California Postsecondary Education Commission profile data on eligibility in California presented at the Urban Community School Collaborative Conference, October 15-17, 1992, Berkeley, CA.

Figure 3: California Public High School Graduates by Category of Eligibility for the University of California, by Race/Ethnicity & Gender

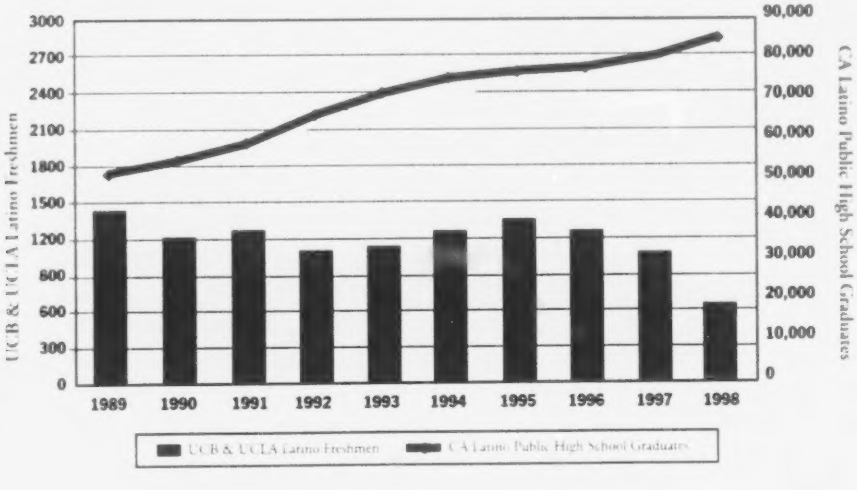

Figure 4: UCB and UCLA Latino Freshmen and CA Latino High School Graduates: 1989-98

Source: UCOP and campus eneollment data. California Department of Education and Department of Finance for HS Graduates, which are projected 1996-98. Fall 1997 Freshmen enrollment estimated from 6/97 SIRs, deflated by 4%. Fall 1998 projected at 50% of 1996, per campus reports.

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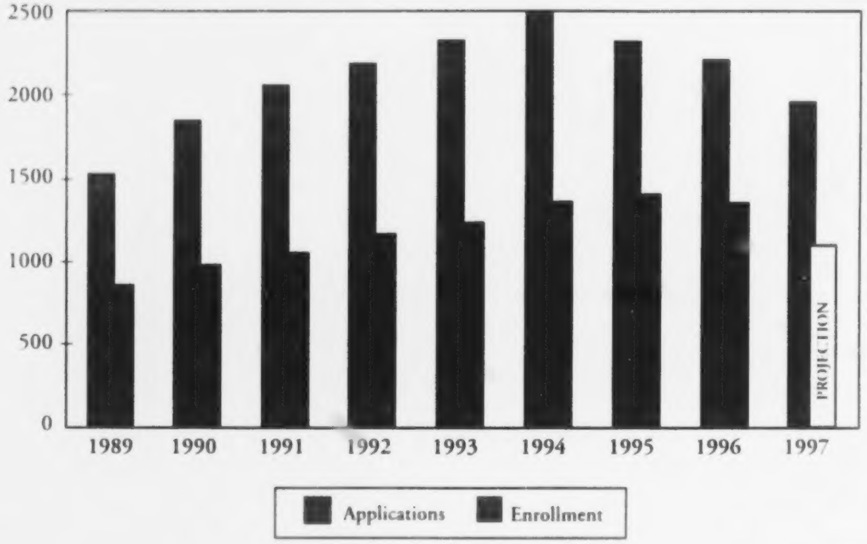
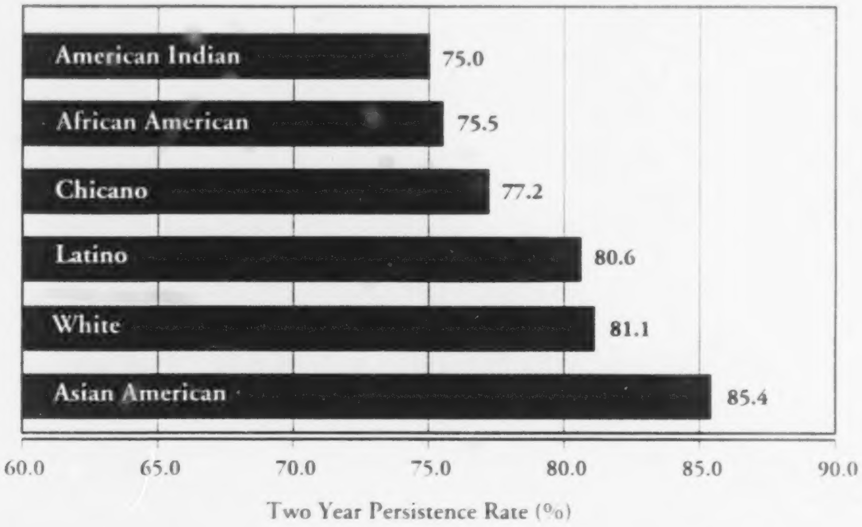
Figure 5: UC Latino Transfer Applications and Enrollments: 1989 to 1997



Source: UCOP Student Academic Services, 1992, 1996, 1997. 1997 Enrollment projected, based on average application to enrollment rate of 59.7% since 1995

Figure 6: UC Wide Two Year Persistence Rates: New Domestic First-Time Regularly Admitted Fall 1988 Freshmen by Ethnic Group



Source: UCOP Student Academic Services *Undergraduate Persistence and Graduation at the University of California 1990-1991*

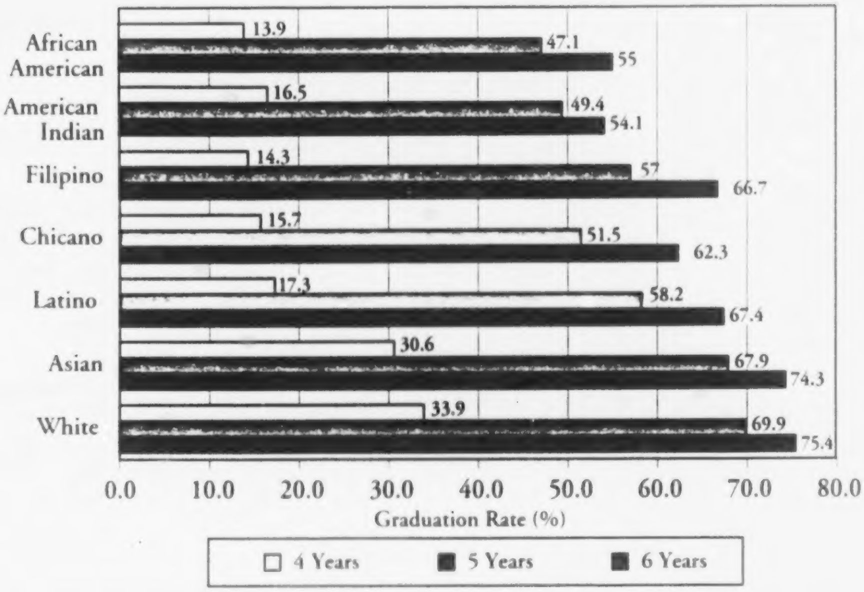


Figure 7: UC Graduation Rates after Four, Five, and Six Years

Source: UCOP: Student Academic Services *Undergraduate Persistence and Graduation at the University of California 1990-1991*

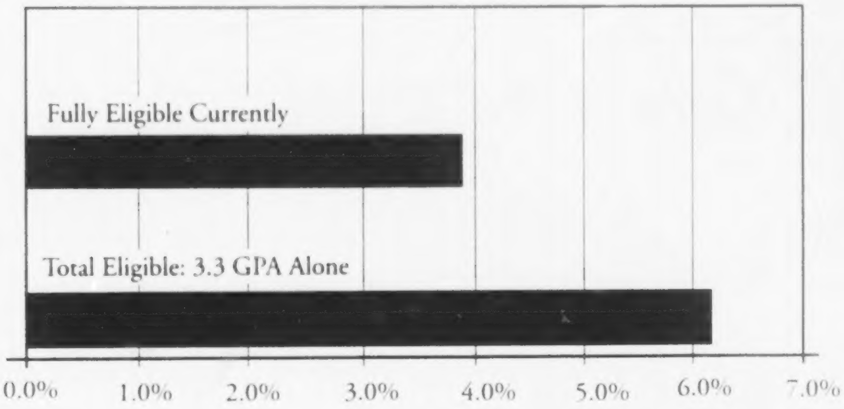


Figure 8: Simulation of Additional Latino High School Graduates Made UC Eligible without SAT Tests

Source: CA Postsecondary Education Commission; Simulation Prepared by UCOP 1997 *(Overall eligibility to UC would also increase beyond 12.5%)*

APPENDIX 2 Publications

MONOGRAPHS

The Educational Achievement of Latinos: Barriers and Successes. A. Hurtado, & E. E. García (Eds.), 1994.

Strategic Interventions in Education: Expanding the Latina/Latino Pipeline. A. Hurtado, R. Figueroa, & E. E. García (Eds.), 1996.

Latino Academic Achievement. R. Paredes, & K. Gutiérrez,(Eds.), 1997, in press.

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Number One March 1993. Myths and realities about Latino students

Number Two November 1993. University outreach programs

Number Three July 1994. Educational achievement

Number Four March 1995. History of responses to Latino under-achievement

WORKING PAPERS

Number One *A Selected Annotated Bibliography on Latinos in Higher Education.* Aída Hurtado and Eugene E. García

Number Two *Storytelling Out of School: Undocumented College Residency, Race, and Reaction.* Michael A. Olivas

Number Three *The Enhancement of Thinking in Environmental Science.* Michael E. Martínez & R. Scott Simpson

Number Four *Post Baccalaureate Aspirations: Chicano/Latino Student Survey: Fall 1993 & Winter 1994.* Maria del Rocio Pacheco and Juan F. Lara

Number Five *Ethnic Self Identification: A Preliminary Study of Stability and Change in a College Student Sample.* Anthony C. R. Hernández and Daniel Solorzano

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THE PRINCETON REVIEW

THE PRINCETON REVIEW OF ORANGE COUNTY AND RIVERSIDE

> *"The Princeton Review's staff was fun and entertaining. They were all easy to relate to."*
>
> Connie Chuang,
> UC Berkeley

When you enroll in a Princeton Review course, we believe that you truly do get "the best of both worlds." As a national company, we have the resources to spend millions of dollars keeping up with the latest changes in the SAT. However, as a locally owned franchise, you also receive the unsurpassed personal attention and customer-service that we have spent the last 12 years providing to area families.

OUR OFFICE STAFF

The Princeton Review's office staff has two full-time responsibilities: 1) Deliver the finest quality SAT course with superb results and customer-service 2) Keep up-to-date with all of the information relating to the SAT and college admissions. We believe that the best way to accomplish these goals is to employ people who enjoy teaching and working with high school students. Together, our office staff has over 50 years of experience teaching the SAT and counseling students about college admissions. We are happiest when we are helping kids. That's why when you call our office, all of our directors seem to know all the answers.

HIGH SCHOOL OUTREACH

The Princeton Review of Orange County and Riverside is dedicated to sharing valuable information about the SAT and college admissions with local high schools. In fact, many of you have probably heard someone from The Princeton Review speak at one of your high school events. We are frequently invited as guest speakers at local high school "Junior Nights," PTA meetings, and College Admission seminars. Dozens of high school teachers have asked us to present SAT Skills seminars in their Math and English classes. We work with local high schools to provide "In-Service" seminars for their faculty, and our fundraising programs have raised tens of thousands of dollars for our community schools.

The reason that we do all of this is that we want to be a contributor to the success of local students. Orange County and Riverside families have helped to make The Princeton Review one of the largest educational franchises in the world, and it is both our pleasure and our duty to give back to our community.

A FEW WORDS FROM OUR FOUNDER

The Princeton Review of Orange County began in September of 1985 with a single locaton in Anaheim. There were 19 students in my first class and their SAT scores improved so greatly, the second class in the spring of 1986 ballooned to over 100 students. Over the last 13 years, we have expanded into 14 different areas of Orange County, Long Beach, Cerritos, and Riverside. Although we now work with a lot more than just 19 students, our philosophy has remained the same: Raise our kids' SAT scores, work hard, and enjoy the experience. I am proud to say that in 1998, we still embrace that philosophy.

We Score More,

Paul Kanarek
President and Founder
The Princeton Review

THE
PRINCETON
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FOSTERING CHANGE

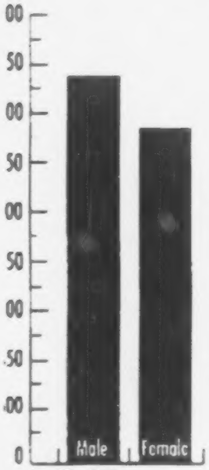
We have always dedicated ourselves to promoting students' rights and exposing the inequities of standardized testing. Our perseverance and continued efforts have changed the way educators look at testing today

For more than 40 years, the College Board and ETS claimed that these tests measured intelligence and that effective preparation was impossible. Largely due to our impressive techniques and score improvements, they have gradually changed their position. In 1994 the College Board admitted that preparation is a good idea, stating, "There's a lot you can do to prepare for the SAT."

It's always been common sense that one should prepare for an important test. Now, it's common knowledge.

WORKING TO MAKE TESTING FAIR

These tests are by nature imperfect and unjust. They measure one's test-taking ability rather than one's knowledge. Among the tests' many flaws are blatant racial, gender, and socioeconomic biases. To say that these tests merely reflect current biases in society is disingenuous. Instead, the tests institutionalize these biases and give them a quasi-scientific validity.



Source: College Board

1995 Average
SAT Scores By Gender

With no one policing them, testing companies have been able to do as they please. As a result, students have been wrongly accused of cheating, reports of proctors' errors in timing have gone unrecognized, and students have had virtually no one to champion their right to fair and just treatment

WE GET RESULTS

That's where we come in. We've helped several groups gather information about tests and test preparation in an effort to expose blatant biases

Our work with New York State Senator Kenneth LaValle, who authored the Truth-in-Testing laws that revolutionized standardized testing, has helped strengthen those laws.

Over the years, we've earned the reputation of being staunch student advocates by helping hundreds of Princeton Review students attempt to get a fair resolution in disputes against the all-powerful testing companies (see page 4)

One significant victory came in the case of Brian Dalton, a Princeton Review student who was unjustly accused of cheating on the SAT by the formidable ETS. In a true instance of David vs. Goliath, Brian was forced to fight a company that had never before lost a case to a student. What transpired in the years between 1992–1995 resulted in Brian losing a scholarship and admission to the college of his choice.

Throughout the trial, The Princeton Review stood behind Brian and helped to prove his innocence. In the end, Brian prevailed and the New York State Supreme Court ordered the release of his scores. Although Brian's life was unjustly disrupted by his court fight, his case represents a landmark win in the testing world and serves to help other students who have been wrongly accused know that there is hope

A CHAMPION OF STUDENTS' RIGHTS

Over the years, we have been involved in several controversial issues that have had a profound influence on the testing world, to the benefit of students everywhere. Today, we continue to maintain an active presence in the fight for students' rights.

1982 The Princeton Review announces that it can raise SAT scores significantly. The College Board argues that the SAT measures aptitude (innate ability), that score improvement is impossible, and that anyone who says otherwise is dishonest.

1994 Following several independent studies verifying The Princeton Review's score claims, the College Board drops "aptitude" from the SAT name and admits that the SAT can be coached.

1983 The Princeton Review finds that students can answer many SAT reading-comprehension questions without reading the accompanying passages. The Educational Testing Service (ETS) shrugs off this concept as idiotic.

1994 On January 26, *The Chronicle of Higher Education* reports that two ETS researchers now support this claim.

1986 The Princeton Review publishes ***Cracking the SAT***, which hits *The New York Times* best-seller list. Stanley Kaplan, then the largest SAT course in the country, declares that "the SAT can't be cracked."

1994 The Princeton Review, the country's largest SAT course, publishes the best-selling ***Cracking the New SAT***. Two years later, The Princeton Review wins the Software Publishers Association Codie Award for its ***Inside the SAT*** CD-ROM.

1991 The Princeton Review declares that ETS's procedures for test security are unfair to students. It joins in a lawsuit against ETS and lobbies in the New York State Legislature for changes to the laws governing test companies. ETS confidently announces that its procedures will be vindicated.

1992 The court rules that ETS's security policies are unfair; New York State, led by State Senator Kenneth LaValle, votes to require test companies to treat students more justly.

1987 The Princeton Review publishes impressive average score improvements for its LSAT, GMAT, GRE, and MCAT courses.
1993 Kaplan argues that such improvements are impossible and that no reputable course would publish claims for its score improvements.

1994 The Princeton Review publishes the world's first study of LSAT, GMAT, GRE, and MCAT score improvements, which is verified by a Big Six accounting firm. The average Princeton Review student has improved his or her scores by almost 30 percentile points.

1992 ETS questions the dramatic SAT score improvement of Brian Dalton, a Princeton Review student from New York. Based on a handwriting analysis, ETS argues that Brian had an impostor take his test. The Princeton Review supports Brian: his practice scores in The Princeton Review course predicted his SAT score, he was identified by the ETS proctor, and his fingerprints were on his answer sheet. He courageously files suit against ETS, endures a 12-day trial, and wins.

1995 After two ETS appeals of Brian's court victory and with The Princeton Review's assistance, Brian wins by a 5–2 decision against ETS in the New York State Court of Appeals. Although dozens of students have previously sued, Brian is the first student ever to beat ETS.

1995 The NCAA announces more stringent Prop. 48 SAT, ACT, and GPA requirements, which must be met by student athletes to play Division I and II college sports and receive athletic scholarships. This action will have an unfortunate impact on those students who tend to score poorly on standardized tests and who often don't have access to any form of test preparation, as many are financially disadvantaged and belong to minority groups.

1996 The Princeton Review publishes the second edition of its free, easy-to-understand "Student's Guide to Prop. 48." The Princeton Review Foundation develops a joint proposal with the National Association of Basketball Coaches (NABC) to provide test coaching to hundreds of financially disadvantaged student athletes nationwide and hosts several free, educational "Prop. 48 Clinics."

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The Princeton Review Enrollment and Score Improvement Data for California
1985-1997

Year	# of Students	Avg. Score Improvement	% change in enrollment since 1985
1985	470	147	
1990	2600	150	453%
1995	4600	145	879%
1996	5035	143	971%
1997	5683	144	1109%

Relationship between SAT scores and income

Family Income	1994 SAT (Verb. + Math)
Over $70,000	1000
$60,000-$70,000	948
$50,000-$60,000	929
$40,000-$50,000	911
$30,000-$40,000	885
$20,000-$30,000	856
$10,000-$20,000	812
Under $10,000	766

Data is from The College Board, 1994 report.

Princeton Review Favors Proposal for Optional SAT

By Linda Lou
Contributing Writer

Top officials of the largest test preparation company in the nation, the Princeton Review, have joined the chorus of voices urging the UC Regents to make the Scholastic Assessment Test optional for admission.

Shon Bayer, director of the Princeton Review's student outreach programs in Northern California, said he supports efforts to lobby the regents to make SATs optional rather than mandatory in UC applications.

"It's always been our belief that the SAT is inherently unfair, just as all standardized tests are," said Bayer. "We recommend it be discontinued, or at least made optional."

He also said that the company's position is a matter of principle, not business.

But he added that even if the SATs were made optional for applicants for UC schools, there would still be students signing up for college preparation programs in order to satisfy SAT requirements for other public and private universities.

"A lot of students apply to UC schools, but there are always private universities that require the SATs," Bayer said. "We also offer other educational services such as preparation for (other) standardized tests, including the ACT, LSAT, MCAT and GRE."

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UC Berkeley Professor Ling-Chi Wang, chair of the Ethnic Studies Department and a former assistant to the chancellor of admissions, said he welcomes the regents' first proposal to eliminate the SAT as a mandatory part of its admissions applications.

"It should have been done 35 years ago when affirmative action first began," Wang said. "The SAT has no predictive value. Its validity is questioned by many educators ,including ones here at UC Berkeley. There's no proof that the SAT will help select the best students."

Wang said the SAT was not created to assess academic ability.

He said that the SAT was originally used after the 1960s to improve expediency due to the increasing number of applicants to the UC school system each year.

He also said that last year, the number of UC Berkeley applicants was at an all-time high at 26,000.

"The debate should be reopened and the university should seriously consider making admissions selections beyond the SAT," Wang said.

He acknowledged, however, the complexity of admissions policies, and suggested an increased use of criteria such as racial diversity and personal talents in examining students' applications.

"Dropping the SAT is not a simple answer to a complicated question," he said. "It is not an instant solution for admissions, and won't drop all problems. Selection for admission is very complicated."

But Seppy Basili, director of the national pre-college program for Kaplan Educational Centers, pointed out that the SAT is not the primary factor for UC admission.

He said that instead the test provides a valuable way to compare students from many different high schools.

"There are a lot of 4.0 GPAs, and the SATs provide a measure in performance on standardized issues," said Basili. "The SAT used in conjunction with grades is an excellent tool for admissions.

"Even if the SAT was made optional, most students will continue to take the SAT or ACT," Basili added. "Students want the best chance for college admissions."

Basili also said not enough students are taking advantage of the ACT, which he feels is a fairer standardized testing method.

"It is interesting that the ACT shows a performance gap between African-Americans and Latinos, which is a much smaller gap than the ones seen in the SATs," said Basili.

Comments? Write to opinion@dailycal.org

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FAIRTEST
NATIONAL CENTER for FAIR & OPEN TESTING

"Our progress as a nation won't be complete if education and professions are closed to talented individuals because biased exams prevent them from competing on a level playing field."

FORMER SENATOR ALBERT GORE
KEYNOTE SPEAKER, FAIRTEST CONFERENCE, 1988

For all their seeming scientific sophistication and objectivity, standardized multiple-choice tests are based on a set of unexamined biases. FairTest is working to expose these tests' flaws and improve education through better methods of assessment.

DEBORAH MEIER
PRINCIPAL, CENTRAL PARK EAST SECONDARY SCHOOL
FAIRTEST BOARD MEMBER

FairTest

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What's wrong with these tests?

K-12 Tests

K-12 exams include readiness, screening, achievement, and IQ tests. Public schools use these tests to determine if children are ready for school; track students into instructional groups; diagnose learning disabilities; and decide to promote, flunk, or graduate students.

But FairTest's groundbreaking report, *Fallout from the Testing Explosion*, documents that many of these tests are poorly constructed, unreliable, and improperly administered. Many are biased racially, culturally, linguistically, and by class and gender.

University Tests

Every year, America's female and minority high school seniors eagerly await notice of whether they have been accepted into the colleges of their choice, little knowing that one of the key criteria for their admission — the badly-flawed Scholastic Aptitude Test — is working against them.

Women, for example, earn higher average grades in high school and in their first year of college, yet score lower on the SAT than their male counterparts. Eligibility for admission, scholarship, and advanced placement are too often heavily determined by such tests despite their margins of error and biases. The result: women and minorities lose out on important educational opportunities.

Employment Tests

In hundreds of occupations from hairdresser to school teacher to lawyer to nuclear power plant operator, passing a standardized exam is necessary to get a job. Yet, there is little evidence that test scores accurately predict who can become a competent worker.

Minorities, women, and those whose first language is not English are most likely to face discrimination from unfair employment testing.

Each year, standardized multiple-choice tests determine the educational and career opportunities of millions of Americans. Whether the goal is entry into kindergarten, placement in special school programs, college admissions, occupational licensing, or civil service promotion, chances are a standardized test will be required. Public schools alone administer more than 100 million of these exams annually.

Given the widespread use and influence of standardized tests, it is critical that they accurately measure necessary skills and ensure equal opportunity, rather than unfairly restrict access to jobs and education. Independent research has proven, however, that too many standardized tests are inaccurate, inappropriate, and unfair.

FairTest has the answers

The National Center for Fair & Open Testing

grew out of a 1985 conference which brought together national leaders of civil rights, consumer, education, and student organizations. Though all the groups were deeply concerned about the growing impact of standardized exams, none had the resources to make testing reform a top priority.

Participants wanted to create an organization which would function as a bridge between the civil rights community and education reformers.

FairTest is the result.

To accomplish its goals, FairTest provides:

Public education.

FairTest serves as an important source of information about testing and alternatives for educators, parents, public officials, journalists and other policymakers.

Technical assistance.

FairTest provides information, training and strategic advice to parents, educators and a broad range of civil rights and women's organizations. FairTest also convenes conferences to discuss joint work and strategies.

Advocacy.

FairTest coordinates and catalyzes educators, citizen groups and parents to bring about needed testing reforms.

> *"Standardized tests are*
> *a form of fraud.*
> *Our reliance on these exams is leading*
> *America towards standardized minds,*
> *standardized thinking,*
> *a standardized curriculum."*
>
> RALPH NADER

> *"Standardized testing seems*
> *to have become the coin*
> *of the educational realm.*
> *It seems the aims of education*
> *and the business of our schools*
> *are addressed not so much*
> *in terms of curriculum...*
> *as in terms of what gets tested."*
>
> GEORGE MADAUS & WALT HANEY
> BOSTON COLLEGE CENTER FOR THE STUDY OF TESTING, EVALUATION AND EDUCATIONAL POLICY

FairTest takes action

- ✓ **FairTest** initiates, supports, and builds coalitions of civil rights, education reform, and other activists. In one state, 50 organizations have united with FairTest to replace current tests with better alternatives. FairTest was the primary force behind creating organizations such as the *National Forum on Assessment* and the *Campaign for Genuine Accountability in Education.*

- ✓ **FairTest** brings the problem of race, gender, and class bias in testing to the attention of policymakers. FairTest helped to initiate a successful federal lawsuit against New York's sole use of SAT scores to grant scholarships. The judge found that "SAT scores capture a student's academic achievement no more than a student's yearbook photograph captures the full range of her experiences in high school."

- ✓ **FairTest** injects balance into news stories on proposals for national testing, the "new" SAT, and teacher testing, providing in many cases the only available critique and independent review.

- ✓ **FairTest** fights for test-takers' rights, such as working to protect Truth-in-Testing laws, which require testmakers to provide basic information on the fairness and accuracy of their tests.

- ✓ **FairTest** publishes research results and frequent updates on the problems and solutions surrounding the testing crisis, through its quarterly newsletter, the *Examiner*, books, special reports, and fact sheets.

> ***"Current testing, predominantly***
> ***multiple choice in format,***
> ***is over-relied upon, lacks adequate***
> ***public accountability,***
> ***sometimes leads to unfairness***
> ***in the allocation of opportunities,***
> ***and too often undermines***
> ***vital social policies."***
>
> REPORT OF THE NATIONAL COMMISSION
> ON TESTING AND PUBLIC POLICY

"The fabulous amounts of money spent on testing might be better spent on services for children or opportunities to improve teaching."

ANN KAHN
NATIONAL PTA

"The importance of understanding what tests can and cannot tell us is critical. Not all tests are accurate measures of the skills and knowledge they purport to measure and even the more accurate tests are – at best – approximations."

CONGRESSIONAL BUDGET OFFICE

3 ways to assure testing reform

SUBSCRIBE

Subscribe to the *FairTest Examiner*, the quarterly source of accurate and independent news about standardized testing advocacy and research. The newsletter also chronicles the latest efforts by industry, governmental bodies, and the courts to respond to the nation's testing crisis.

CONTRIBUTE

Join the rapidly expanding movement to subject standardized tests to public scrutiny by supporting FairTest.

FairTest Associates receive a subscription to the *FairTest Examiner*. **FairTest Sponsors** receive a subscription and a complimentary publication. **FairTest Sustainers** receive these benefits, plus discounts on all other FairTest publications.

EDUCATE

FairTest makes available an ever-growing list of books and other publications that delve deeply into testing issues, from the essential primers on standardized testing, ***Fallout from the Testing Explosion*** and ***Standing Up to the SAT***, to the popular organizing guide, ***Standardized Tests and Our Children: A Guide to Testing Reform***. A full list of FairTest publications is attached.

> *"It is practically impossible for a competent test technician or test consumer to make a thorough appraisal... because of the limited amount of trustworthy information supplied by the test publishers."*
>
> DR. OSCAR K. BUROS
>
> EDITOR, MENTAL MEASUREMENT YEARBOOK

> *"There has been an explosion of coaching schools, but enrollment is almost entirely stratified along financial lines. We have real problems using something that can be so biased by economic resources. It's just not fair to minority, blue-collar and rural students."*
>
> WILLIAM C. HISS
>
> DEAN OF ADMISSIONS AND FINANCIAL AID, BATES COLLEGE, WHICH MADE THE SAT OPTIONAL IN ADMISSIONS

FairTest Goals and Principles

The National Center for Fair & Open Testing (FairTest) was founded in 1985 on these basic principles:

TESTS SHOULD BE FAIR AND VALID.

Tests should provide equal opportunity, rather than favor individuals on the basis of race, ethnicity, gender or income level.

TESTS SHOULD BE OPEN.

Independent researchers should have greater access to testing data, including evidence of test validity and reliability.

TESTS SHOULD BE VIEWED IN THEIR PROPER PERSPECTIVE.

Safeguards must be established to ensure that curricula are not driven by standardized testing and that test scores are not the sole criterion by which major educational and employment decisions are made.

ALTERNATIVE ASSESSMENT INSTRUMENTS SHOULD BE DEVELOPED.

New methods of evaluation that fairly and accurately diagnose the strengths and weaknesses of students, workers and programs need to be designed and implemented.

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FairTest
National Center for Fair & Open Testing

What's Wrong with Standardized Tests?

1) *Are standardized tests fair and helpful evaluation tools?*

Not really. Standardized tests are tests on which all students answer the same questions, usually in multiple-choice format, and each question has only one correct answer. They reward the ability to quickly answer superficial questions that do not require real thought. They do not measure the ability to think or create in any field. Their use encourages a narrowed curriculum, outdated methods of instruction, and harmful practices such as retention in grade and tracking. They also assume all test-takers have been exposed to a white, middle-class background. (See "How Standardized Testing Damages Education," a FairTest fact sheet.)

2) *Are standardized tests objective?*

The only objective part of most standardized tests is the scoring, when it is done by machine. What items to include on the test, the wording and content of the items, the determination of the "correct" answer, choice of test, how the test is administered, and the uses of the results are all decisions made by subjective human beings.

3) *Are test scores "reliable"?*

A test is completely reliable if you would get exactly the same results the second time you administered it. All existing tests have "measurement error." This means an invidual's score may vary from day to day due to testing conditions or the test-taker's mental or emotional state. As a result, many individual's scores are frequently wrong. Test scores of young children and scores on sub-sections of tests are much less reliable than test scores on adults or whole tests.

4) *Do test scores reflect real differences among people?*

Not necessarily. To construct a norm-referenced test (a test on which half the test-takers score above average, the other half below), test makers must make small differences among people appear large. Because item content differs from one test to another, even tests that claim to measure the same thing often produce very different results. Because of measurement error, two people with very different scores on one test administration might get the same scores on a second administration. On the SAT, for example, the test-makers admit that two students' scores must differ by at least 144 points (out of 1200) before they are willing to say the students' measured abilities really differ.

5) *Don't test-makers remove bias from tests?*

Most test-makers review items for obvious biases, such as offensive words. But this is inadequate, since many forms of bias are not superficial. Some test-makers also use statistical bias-reduction techniques. However, these techniques cannot detect underlying bias in the test's form or content. As a result, biased cultural assumptions built into the test as a whole are not exposed or removed by test-makers.

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6) *Do IQ tests measure intelligence?*

IQ tests assume that intelligence is one thing that can be easily measured and put on a scale, rather than a variety of abilities. They also assume intelligence is fixed and permanent. However, psychologists cannot agree whether there is one thing that can be called intelligence, or whether it is fixed, let alone meaningfully measure "it." Studies have shown that IQ scores can be changed by training, nutrition, or simply by having more friendly people administer the test. In reality, IQ tests are nothing more than a type of achievement test which primarily measures knowledge of standard English and exposure to the cultural experiences of middle class whites.

7) *Do tests reflect what we know about how students learn?*

No. Standardized tests are based in behaviorist psychological theories from the nineteenth century. While our understanding of the brain and how people learn and think has progressed enormously, tests have remained the same. Behaviorism assumed that knowledge could be broken into separate bits and that people learned by passively absorbing these bits. Today, cognitive and developmental psychologists understand that knowledge is not separable bits and that people (including children) learn by connecting what they already know with what they are trying to learn. If they cannot actively make meaning out of what they are doing, they do not learn or remember. But most standardized tests do not incorporate the modern theories and are still based on recall of isolated facts and narrow skills.

8) *Do multiple-choice tests measure important student achievement?*

Multiple-choice tests are a very poor yardstick of student performance. They do not measure the ability to write, to use math, to make meaning from text when reading, to understand scientific methods or reasoning, or to grasp social science concepts. Nor do these tests adequately measure thinking skills or assess what people can do on real-world tasks.

9) *Are test scores helpful to teachers?*

Standardized, multiple choice tests were not originally designed to provide help to teachers. Classroom surveys show teachers do not find scores from standardized tests very helpful, so they rarely use them. The tests do not provide information that can help a teacher understand what to do next in working with a student because they do not indicate how the student learns or thinks. Good evaluation would provide helpful information to teachers.

10) *Are readiness or screening tests helpful?*

Readiness tests, used to determine if a child is ready for school, are very inaccurate and unsound. They encourage overly academic, developmentally inappropriate primary schooling. Screening tests for disabilities are often not adequately validated; they also promote a view of children as having deficits to be corrected, rather than having individual differences and strengths on which to build.

11) *Are there better ways to evaluate student achievement or ability?*

Yes. Good teacher observation, documentation of student work, and performance-based assessment, all of which involve the direct evaluation of student effort on real learning tasks, provide useful material for teachers, parents, the community and the government.

For further information see Fallout from the Testing Explosion, *from FairTest for $8.95.*

FairTest has other Fact Sheets on Testing. Send SASE to K-12 Fact Sheets at FairTest.

FairTest

National Center for Fair & Open Testing

What Is Authentic Evaluation?

Authentic evaluation of educational achievement directly measures actual performance in the subject area. Standardized multiple-choice tests, on the other hand, measure test-taking skills directly, and everything else either indirectly or not at all.

Also called "performance," "appropriate," "alternative," or "direct" assessments, authentic evaluation includes a wide variety of techniques, such as written products, solutions to problems, experiments, exhibitions, performances, portfolios of work and teacher observations, checklists and inventories, and cooperative group projects. They may be the evaluation of regular classroom activity or take the form of tests or special projects.

Authentic evaluations indicate what we value by directing instruction toward what we want the student to know and be able to do. They are appropriate to the student's age and level of learning and the subject being measured, and are useful to both teachers and students.

All forms of authentic assessment can be summarized numerically or put on a scale. Therefore, individual results can be combined to provide a variety of information about aggregate performance at the classroom, school, district, state, and national levels. Thus, state and federal requirements for comparable quantitative data can be met.

Authentic assessment was developed in the arts and in apprenticeship systems, where assessment has always been based on performance. It is impossible to imagine evaluating a musician's ability without hearing her or him sing or play an instrument, or judging a woodworker's craft without seeing the table or cabinet. It is also impossible to help a student improve as a woodworker or musician unless the instructor observes the student in the process of working on something real, provides feedback, monitors the student's use of the feedback, and adjusts instruction and evaluation accordingly. Authentic assessment extends this principle of evaluating real work to all areas of the curriculum.

The most widely used form of authentic assessment in education today is in writing. For example, twenty-eight states, the National Assessment of Educational Progress (NAEP), and many other nations ask students to write on assigned topics. The essays and stories are graded by teams of readers (usually teachers) who assign grades according to standard guidelines. The readers are trained and retrained throughout the process to maintain reliable standards, a process that produces a high degree of agreement among judges. As with all the examples, this methodology can be used to evaluate classroom work that has been collected in a portfolio; it only has to be adjusted for subject area and student age.

Similar procedures are now being followed with open-ended mathematics questions. These ask students to write their own response to a problem. There is no single way to find a

FairTest: NATIONAL CENTER FOR FAIR & OPEN TESTING

READINESS TESTS FACT SHEET

The main reason for testing and evaluating students must be to improve student learning. Each year, however, public school students in the U.S. must take millions of standardized tests which are more harmful than helpful and which do nothing to improve the quality of instruction or learning for students.

Among the tests which are especially damaging to young children are readiness tests. Schools frequently use the scores from readiness tests to judge whether children are 'ready' for kindergarten or are 'ready' for promotion to first grade.

There are more than 100 different readiness tests. The best known include:

- Boehm Test of Basic Concepts (Psychological Corporation)
- Brigance Inventory of Early Development (Curriculum Associates)
- Gesell School Readiness Test (Gesell Institute)
- Metropolitan Readiness Test (Psychological Corporation).

MAY 1990 $1.95

PARENTING

Out from the start

Many five-year-olds are now being labeled "unready" for kindergarten. But educators say the problem is the curriculum, not the kids.

By Eric Goodman

Older Five, and Younger Five

The Problem

There are several problems with using readiness tests to make important decisions about children's lives.

Because young children grow and change very rapidly, and because the tests are very limited in what they can measure, researchers have found that readiness tests are wrong up to half the time. Thus, these tests may be no more accurate than flipping a coin.

As a result of reliance on faulty test scores, many children are not allowed to enter school; are inappropriately placed in special education, transitional groupings, or "ability groups" (also known as tracking); or are improperly held back. According to many experts, tracking and retention are not educationally sound for students of any age. With young children, these practices can lay the foundation for poor school performance, even dropping out of school in later years.

Children who score low often are labelled "not ready," "failures," or "slow learners," labels that will stay with them throughout their educational careers. These labels may well become self-fulfilling prophecies, with negative consequences for individual children and our society.

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ACHIEVEMENT TESTS FOR YOUNG CHILDREN

FACT SHEET

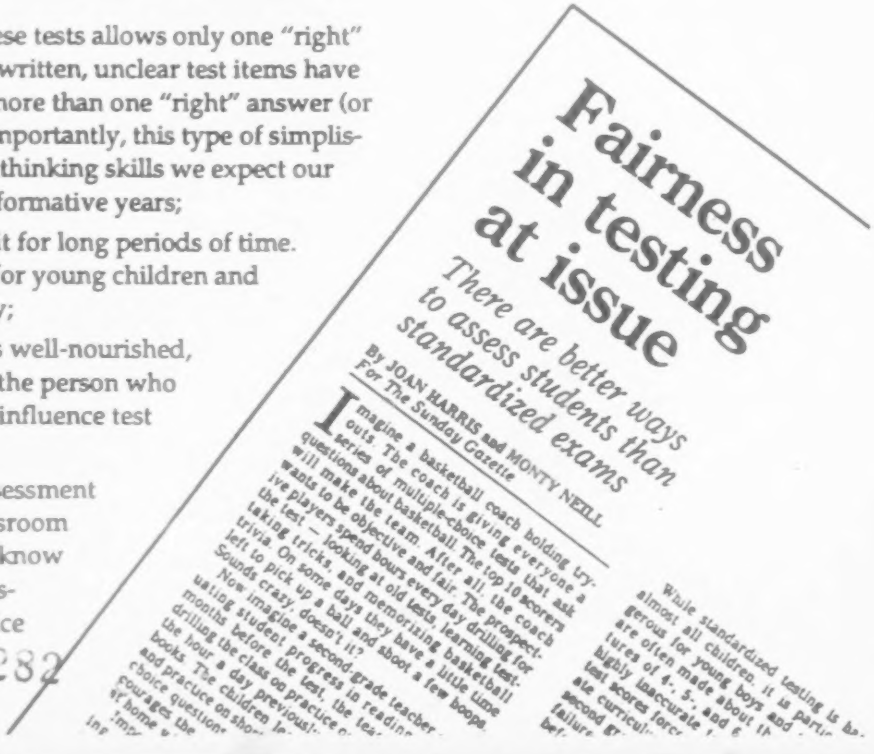
During the 1970s and '80s, the pressure for students to attain high test scores on standardized, multiple-choice achievement tests spread to the primary grades. Tests such as the California Achievement Test (made by CTB/McGraw-Hill) or Metropolitan Achievement Test (Psychological Corporation), which are supposed to measure students' skills in specific areas like math or reading, are now given as early as grades 1 and 2.

Problem

As evaluation tools for young children, achievement tests are not adequate for showing how or what students are learning, the kinds of help they need, or the quality of teaching they receive. Because they fail to measure much more than test-taking ability, they should not be used to make important educational decisions about young children.

There are many reasons for this. Among them are:

- Achievement tests usually do not measure what they are said to measure. For example, a standardized "reading" test may really only test a child's ability to spell or recognize words, rather than actually read;
- The multiple-choice format of these tests allows only one "right" answer per question. But poorly-written, unclear test items have frequently been proven to have more than one "right" answer (or even *no* correct answers). More importantly, this type of simplistic test undermines higher-order-thinking skills we expect our children to develop during their formative years;
- To take the tests, children must sit for long periods of time. This kind of pressure is difficult for young children and can cause them to perform poorly;
- Factors such as whether a child is well-nourished, had a good night's rest, or trusts the person who administers the test can strongly influence test performance;
- To help young children learn, assessment must be a part of the regular classroom program, in which teachers who know the children are the primary assessors. Standardized, multiple-choice



Fairness in testing at issue

There are better ways to assess students than standardized exams

By JOAN HARRIS and MONTY NEILL
For The Sunday Gazette

Imagine a basketball coach holding try-outs. The coach is giving everyone a series of multiple-choice tests that ask questions about basketball. The top 10 scorers will make the team. After all, the coach wants to be objective and fair. The prospective players spend hours every day drilling for the test — looking at old tests, learning test-taking tricks, and memorizing basketball trivia. On some days they have a little time left to pick up a ball and shoot a few hoops.

Sounds crazy, doesn't it?

Now imagine a second-grade teacher

While standardized testing is ha almost all children, it is partic gerous for young boys and are often made about th tures of 4-, 5-, and 6 highly inaccurate test scores forc

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The SAT: Questions and Answers

What is the SAT?

The SAT is this nation's oldest, most widely used -- and misused -- college entrance exam. It is composed of two sections, Verbal and Math, each scored on a 200-800 point scale. The 138 questions are nearly exclusively multiple-choice; ten math questions require students to "grid in" the answer. By design, the test is "speeded" which means that many test takers are unable to finish all the questions.

The Educational Testing Service (ETS), under contract to the College Board, produces and administers the test.

What Does SAT Stand For?

Nothing. Initially titled the Scholastic Aptitude Test and then the Scholastic Assessment Test, it is now officially named just SAT I because of uneasiness at ETS and the College Board about defining just what the test measures. "SAT is not an initialism; it does not stand for anything," say the testmakers.

What is on the SAT?

A direct descendant of the racist anti-immigrant Army Mental Tests of the 1920s, the SAT was first administered in 1926 but did not become a fully multiple-choice exam until after World War II. From the beginning the test was designed to be independent of high school curricula (unlike the SAT's main competitor, the ACT). It now consists of analogies, sentence completions, reading comprehension, standard math and quantitative comparisons. The SAT does not include advanced mathematics topics nor does it attempt to assess higher-order thinking or reasoning skills. Though a "Verbal" score is provided, test takers do not write a single word.

What is the SAT Used For?

The SAT is validated for just one purpose: predicting first-year college grades. It does not do even this very well. Testmakers acknowledge that high school grade-point average (GPA) or class rank are the best predictors of first-year grades, despite the huge variation among high schools and courses. The SAT predicts other outcomes, such as graduation rates, even more poorly.

As more colleges move away from using the SAT for making admissions decisions, the testmakers are promoting its use for course placement purposes. However, studies show that the individual colleges' exams are much more accurate tools for placing students.

SAT Myths

The Test Is a Common Yardstick

After years of describing the SAT as a "common yardstick," the testmakers have now flip-flopped, claiming "it is a myth that a test will provide a unitary, unequivocal yardstick for ranking on merit." The SAT has always favored students who can afford coaching over those who cannot, students from wealthy suburban schools over those from poor urban school systems, men over women and students whose parents attended college over those whose parents did not.

Coaching Does Not Work

The testmakers have backed away from their original claims that performance on the SAT could not be improved through coaching. The College Board even sells its own coaching materials. A number of published studies conclude that good coaching courses can raise a student's scores by 100 points or more. These courses, which can cost $700 or more, further skew scores in favor of higher-income test takers. Because college admissions officials do not know who has been coached and who has not, they cannot fairly compare two applicants' scores.

Admissions Officers Need the SAT to Compare Students From Different High Schools

One careful academic study compared two admissions strategies, one using just the high school record and the other using high school record and SAT scores. More than 90% of the admissions decisions were the same under both strategies. However, the SAT-based strategy led to a far greater number of rejections of otherwise academically qualified minority and low-income applicants.

Most 4-year colleges accept more than 75% of their applicants and have limited or no real need for the SAT as an admissions tool. Even selective schools that reject more than half their applicants could drop the SAT without paying an academic price.

Colleges Cannot Operate Without the SAT or ACT

Concerned about problems with these tests, nearly 300 4-year colleges and universities no longer use the SAT or ACT to make admissions decisions about at least some of their applicants. These range from small, selective liberal arts colleges such as Bates, Bowdoin and Lafayette (which report increased diversity but no drop-off in the academic quality of their applicants) to public universities in Oregon and California. Beginning with the class admitted in 1998, applicants to public universities in Texas do not have to submit SAT or ACT scores if they finish in the top 10 percent of their high school classes. That policy change came after state researchers concluded that "the use of standardized tests unduly limits admissions" and that, "except at the extremes, SAT/ACT scores do not adequately predict grades in core freshman courses or the probability of college graduation."

SAT Misuse

How is the SAT Misused?

No standardized test should be used as the sole factor in making any decision. Nor should any test be used for a purpose for which it has not been "validated." Cutoff scores should not be used, especially for high-stakes decisions. Test use guidelines like these are frequently ignored, with no sanctions from ETS or the College Board.

Any uses of the SAT that treat scores as precise measures are seriously flawed, the testmakers say: two students' scores must differ by at least 125 points before they can reliably be said to be different.

Examples of Misuse:

National Merit Scholarships: The National Merit Scholarship Corporation uses Preliminary SAT (nearly identical to the SAT) scores as the sole criterion to select National Merit Scholarship semifinalists. The resultant pool of semifinalists has historically been predominantly male because boys score higher on the PSAT even though girls earn higher grades in high school (and college). In 1993, FairTest filed a complaint with the Office for Civil Rights (OCR) charging the testmakers with illegally assisting gender bias. As part of a settlement with OCR, ETS and the College Board agreed in 1997 to add a new multiple-choice "writing" component to the PSAT. Since girls have scored higher on writing sections similar to the new PSAT section on other exams, subsequent pools of semifinalists should include more females.

NCAA Proposition 16: The National Collegiate Athletic Association denies the right to compete to first-year students whose SAT or ACT scores fall short of a fixed score cutoff. Prop. 16, as the requirement is known, disqualifies a disproportionate number of academically qualified African Americans. In January 1997, two student-athletes filed a race discrimination lawsuit against the NCAA in federal court in Philadelphia

Gifted and Talented Programs: Many special programs for the "gifted and talented," such as the Johns Hopkins Center for the Advancement of Academically Talented Youth, use the SAT or similar tests to select participants. Not surprisingly, girls and minorities are underrepresented in these accelerated programs.

1997 SAT Scores

Source: College Board

					Math	Verbal	Total
				American Indian or Alaskan Native	475	475	950
				Asian, Asian Amer., or Pacific Is.	496	560	1056
				Black or African American	434	423	857
Male	507	530	1037	Mexican American	451	458	909
Female	503	494	997	Puerto Rican	454	447	901
				Hispanic/Latino	466	468	934
TOTAL	505	511	1016	White	526	526	1052

SAT Bias

The Gender Gap

The SAT consistently underpredicts the performance of females in college and overpredicts the performance of males. Although females earn higher grades in high school and college, their SAT scores were 40 points lower in 1997 (36 on the SAT-Math and 4 on SAT-Verbal). College Board research has shown that both the Verbal and Math portions of the test underpredict girls' college performance. A 1994 ETS study found that, on average, males scored 33 points higher on the SAT-Math than females who earn the same grades in the same college math courses.

Analyses of SAT gender bias cite several causes including the test's emphasis on speed over sustained reasoning and its multiple-choice format. Mathematics tests in other countries that require solutions to long problems appeared unbiased with respect to gender.

Bilingual Students

The speeded nature of the SAT imposes an unfair burden on students for whom English is not the first language. Research suggests that the SAT does not predict Hispanic students' first-year college grades as accurately as it does white students' grades. One study found that even for bilingual students whose best language was English the SAT underpredicted college performance.

Impact of SAT Use on Minorities

African American, Latino, new Asian immigrant and many other minority test-takers score significantly lower than white students. Rigid use of SATs for admissions will produce freshman classes with very few minorities and with no appreciable gain in academic quality. The SAT is very effective at eliminating academically promising minority (and low-income) students who apply with strong academic records but relatively low SAT scores. Colleges that have made the SAT optional report that their applicant pools are more diverse and that there has been no drop off in academic quality.

Stereotype Vulnerability

Several studies show that female and minority students who are aware of racial and gender stereotypes score lower on tests such as the SAT which purport to measure academic aptitude. One study defined this extra burden borne by some test-takers as "stereotype vulnerability," and warned that these findings "underscore the danger of relying too heavily on standardized test results in college admissions or otherwise."

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Gender Bias in College Admissions Tests

The Scholastic Assessment Tests (SAT)

Nearly one-and-three-quarter million high school students annually take the Educational Testing Service's SAT, America's oldest and most widely used college entrance exam. It is composed of two sections, Verbal and Math, each scored on a 200-800 point scale. Test questions are almost exclusively multiple-choice; a few "student-produced response" questions were recently added, which require the student to "grid in" the answer (like filling in the name and address section).

The SAT is designed solely to predict students' first year college grades. Yet, despite the fact that girls earn higher grades throughout both high school and college,[1] they consistently receive lower scores on the exam than do their male counterparts. In 1994, girls averaged 41 points lower than boys on the Math section of the test, and 4 points lower on the Verbal section.[2] As the following chart shows, this gender gap persists across all racial/ethnic groups.

1994 ETHNIC/GENDER SAT SCORES

	Verbal		Math		Total	
	F	M	F	M	F	M
Caucasian	441	445	475	519	916	964
Asian American	414	417	514	557	928	974
Black	354	348	381	399	735	747
Mexican American	368	375	410	448	778	823
Puerto Rican	365	371	395	432	760	803
Other Hispanics	379	389	414	462	793	851
American Indian	395	397	425	459	820	856
Other	424	426	459	505	883	931
All Seniors	421	425	460	501	881	926

(source: *College Bound Seniors: 1994 Ethnic/Gender Profiles, College Board, 1994*)

A gender gap favoring boys persists across all other demographic characteristics, including family income, parental education, grade point average, coursework, rank in class, size of high school, size of city, etc.

Contrary to the test-maker's assertions, the gender gap does not merely reflect differences in academic preparation. ETS researchers Howard Wainer and Linda Steinberg found that on average, males score 33 points higher on the SAT-Math than females who earn the same grades in the same college math courses. The authors state that the "consistent underprediction of women's performance in college mathematics courses provides evidence that the SAT-M, used alone, is mismeasuring the profile of proficiencies that contribute to success in college."[3]

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different test items. Dwyer cites as an example the fact that, for the first several years the SAT was offered, boys scored higher than girls on the Math section but girls achieved higher scores on the Verbal section. ETS policy-makers determined that the Verbal test needed to be "balanced" more in favor of boys, and added questions pertaining to politics, business and sports to the Verbal portion. Since that time, boys have outscored girls on both the Math and Verbal sections. Dwyer notes that no similar effort has been made to "balance" the Math section, and concludes that "It could be done, but it has not been, and I believe that probably an unconscious form of sexism underlies this pattern. When girls show the superior performance, 'balancing' is required; when boys show the superior performance, no adjustments are necessary."[7]

Multiple-choice format

A joint study by the Educational Testing Service and the College Board concluded that the multiple-choice format itself is biased against women. The study examined a variety of question types on Advanced Placement tests (like the SAT, made by ETS for the college board and administered to college bound seniors) and found that the gender gap narrowed or disappeared on all types of questions (e.g. short answer, essay, constructed response) except multiple choice. Similar results were also found with the California Bar Exam and the SAT's English Composition Test with Essay. The researchers conclude, "The better relative performance of females on constructed-response tests has important implications for high-stakes standardized testing... If both types of tests measure important education outcomes, equity concerns would dictate a mix of the two types of assessment instruments

Guessing

The SAT is scored with a "guessing penalty," which deducts one-quarter point for every incorrect answer. Questions left blank are simply scored as zero. The intent of this policy is to make random guessing inadvisable. However, since one or two answer choices can usually be eliminated as obviously incorrect, it is often in the test-taker's best interest to make an educated guess.

Research indicates that boys are more likely to take risks on the test and guess when they do not know the answer, whereas girls tend to answer the question only if they are sure they are correct.[9] Unwillingness to make educated guesses on this exam has been shown to have a significant negative impact on scores.[10]

The ACT does not have a guessing penalty, which may be one reason why the gender gap on that test is much smaller.

"Speededness"

Another factor that contributes to the gender gap is the fast-paced, or "speeded" nature of the test. On some sections of the exam, students must answer as many as 35 questions (some of them requiring lengthy reading passages) in 30 minutes--an average of only 51 seconds per question.

Substantial evidence exists that girls approach problem-solving differently than boys; they are more likely to work a problem out completely, to consider more than one possible answer, and to check their answers. While these are desirable traits in school and in life, they work against females on an exam that is supposed to predict their ability to do academic work.

Numerous studies have found that when the time constraint is lifted from the test, girls' scores improve markedly, while boys' remain the same or increase slightly. Untimed administrations of the test still show a small score difference between males and females, suggesting that speededness is only one of several factors that bias the exam against young women.[11]

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284 Schools Where SAT and ACT Scores Are Optional For Admission Into Bachelor Degree Programs

AK	Sheldon Jackson College, Sitka
AL	Alabama State University, Montgomery[1]
	Miles College, Fairfield[1]
	Oakwood College, Huntsville[1]
	Selma University, Selma[1]
	Southern Arkansas University, Magnolia[1]
	Stillman College, Tuscaloosa[1]
	Troy State University, Montgomery
AR	Philander Smith College, Little Rock[1]
	University of Arkansas, Fayetteville
	University of Arkansas-Monticello, Monticello
	University of Arkansas-Pine Bluff, Pine Bluff
AZ	Arizona College of the Bible, Phoenix[1]
	Northern Arizona University, Flagstaff[3]
	Prescott College, Prescott
CA	Academy of Art College, San Francisco
	Amer. College for the Applied Arts, Los Angeles
	Armstrong University, Berkeley
	Art Inst. of Southern California, Laguna Beach
	CA Polytechnic State University, San Luis Obispo
	CA State Polytechnic University, Pomona
	CSU Bakersfield, Bakersfield
	CSU Chico, Chico
	CSU Dominguez Hills, Dominguez Hills
	CSU Fresno, Fresno
	CSU Fullerton, Fullerton
	CSU Hayward, Hayward
	CSU Long Beach, Long Beach
	CSU Los Angeles, Los Angeles
	CSU Northridge, Northridge
	CSU Sacramento, Sacaramento
	CSU San Bernardino, San Bernardino
	CSU Stanislaus, Stansilaus
	Calif. College for Health Sciences, Nat'l City[4]
	Golden Gate University, San Francisco
	Humboldt State University (CSU), Arcata
	Humphreys College, Stockton
	JFK University, Orinda
	La Sierra University, Riverside[3]
	National University, San Diego
	New College of California, San Francisco
	New School of Architecture, San Diego
	Patten College, Oakland
	San Diego State University (CSU), San Diego
	San Francisco State University (CSU), San Francisco
	San Jose State University (CSU), San Jose
	Sonoma State University (CSU), Rohnert Park
CO	National College, Denver
	Nazarene Bible College, Colorado Springs
CT	Charter Oak State College, Newington
	Connecticut College, New London[5]
DC	Southeastern University, Washington
	Strayer College, Washington[1]
	Univ. of the District of Columbia, Washington
DE	Wilmington College, New Castle[1]
FL	Bethune-Cookman College, Daytona Beach
	Edward Waters College, Jacksonville[1]
	Florida Memorial College, Miami[1]
	Fort Lauderdale College, Ft. Lauderdale
	Hobe Sound Bible College, Hobe Sound[1]
	Jones College, Jacksonville
	Orlando College, Orlando
	Ringling School of Art and Design, Sarasota[3]
	Schiller International University, Dunedin
	Tampa College, Tampa
GA	American College for the Applied Arts, Atlanta
	Brewton-Parker College, Mount Vernon[1]
	Emmanuel College, Franklin Springs[1]
	Thomas College, Thomasville
GU	University of Guam, Mangilao
HI	Hawaii Pacific University, Honolulu
ID	Northwest Nazarene College, Nampa[1,3]
IL	Columbia College, Chicago
	East-West University, Chicago
	Internat'l Acad. of Mrchndising & Design, Chicago
	Olivet Nazarene University, Kankakee[1]
	Robert Morris College, Chicago
	Shimer College, Waukegan
IN	Calumet College of St. Joseph, Hammond
	Indiana State Univ., Terre Haute[1]
	Indiana University Bloomington, Bloomington[3]
	Indiana University East, Richmond[1]
	Martin University, Indianapolis
KS	Emporia State University, Emporia[2,3]
	Fort Hays State University, Hays[1]
	Kansas State University, Manhattan
	MidAmerica Nazarene College, Olathe
	Pittsburg State University, Pittsburg[1]
	University of Kansas, Lawrence[2,3,4]
	Washburn University of Topeka, Topeka[1]
	Wichita State University, Wichita
KY	Clear Creek Baptist Bible College, Pineville
	Eastern Kentucky University, Richmond[1,2]
	Lindsey Wilson College, Columbia[1]
	Mid-Continent Baptist Bible College, Mayfield
	Northern Kentucky University, Highland Heights[1]
	Pikeville College, Pikeville
	Sue Bennett College, London[1]
LA	Grambling State University, Grambling[1]
	Grantham College of Engineering, Sidell

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Louisiana State University, Shreveport[1,3]
McNeese State University, Lake Charles[1]
Nicholls State University, Thibodaux[1]
Northeast Louisiana University, Monroe[1]
Northwestern State University, Natchitoches[1]
Southeastern Louisiana University, Hammond[1]
Southern University & A&M College, Baton Rouge
Southern University at New Orleans, New Orleans[1]
University of Southwestern Louisiana, Lafayette[1]
MA Becker College, Worcester[4]
Boston Architectural Center, Boston
Cambridge College, Cambridge
Endicott College, Beverly
Hampshire College, Amherst
Hebrew College, Brookline
Mount Ida College, Newton Center
Wheaton College, Norton
MD Baltimore Hebrew University, Baltimore
St. John's College, Annapolis
Univ. of Maryland University College, College Park[6]
ME Bates College, Lewiston
Bowdoin College, Brunswick
College of the Atlantic, Bar Harbor
Unity College, Unity
Univ. of Maine at Farmington, Farmington
University of Maine at Augusta, Augusta
MI Baker College of Cadillac, Cadillac
Baker College of Flint, Flint
Baker College of Mount Clemens, Clinton Township
Baker College of Muskegon, Muskegon
Baker College of Owosso, Owosso
Baker College of Port Huron, Port Huron
Cleary College, Ypsilanti
Davenport College of Business, Grand Rapids
Detroit College of Business, Dearborn
Ferris State University, Big Rapids[3]
Lake Superior State University, Sault Ste. Marie[1]
Lawrence Technological University, Southfield[1]
Michigan Technological Univ., Houghton
Oakland University, Rochester[1]
Reformed Bible College, Grand Rapids
Wayne State University, Detroit[3]
MN Bemidji State University, Bemidji[1,3]
Minnesota Bible College, Rochester
National College, St. Paul
Univ. of Minnesota: Crookston, Crookston
MO Baptist Bible College, Springfield
Hannibal-LaGrange College, Hannibal[1]
Lincoln University, Jefferson City[1]
Missouri Baptist College, St. Louis[1]
Missouri Western State College, St. Joseph
National College, Kansas City
Ozark Christian College, Joplin[1]
Univ. of Missouri -- Kansas City, Kansas City[7]
MS Magnolia Bible College, Kosciusko
Tougaloo College, Tougaloo
MT Salish Kootenai College, Pablo
University of Great Falls, Great Falls
NC East Coast Bible College, Charlotte[1]
John Wesley College, High Point
ND Mayville State University, Mayville[1]
Minot State University, Minot[1]
NE Chadron State College, Chadron[1]
Peru State College, Peru[2]
Union College, Lincoln[1]
Wayne State College, Wayne[1]
NH College for Lifelong Learning, Durham
New England College, Henniker
NJ Thomas Edison State College, Trenton
NM National College, Albuquerque
St. John's College, Santa Fe
NV Sierra Nevada College, Incline Village
University of Nevada: Reno, Reno[1,3]
NY Bard College, Annandale-on-Hudson
Baruch College (City University of NY), Manhattan[3]
Boricua College, New York
Brooklyn College (City University of NY), Brooklyn[3]
City College (City University of NY), Manhattan
Coll. of Staten Island (City U. of NY), Staten Island
Eastman School of Music at Univ of Rochester, Roch.
Fashion Instit. of Technology, New York
Hartwick College, Oneonta
Herbert H. Lehman College (City Univ. of NY), Bronx[3]
Hilbert College, Hamburg
Hunter College (City University of NY), Manhattan[3]
John Jay Coll. of Criminal Justice (CUNY), Manhattan
Julliard School, New York
Long Island Univ.: Brooklyn Campus, Brooklyn[4]
Medaille College, Buffalo
Medgar Evers College (City Univ. of NY), Brooklyn
Mercy College, Dobbs Ferry
New York City Technical College (CUNY), Brooklyn
New York Institute of Technology, Old Westbury[1,4]
Queens College (City Univ. of NY), Queens[3]
State U of NY/Empire State Coll., Saratoga Springs
Union College, Schenectady[5]
Univ. of the State of N.Y. - Regents College, Albany
Utica Coll. of Syracuse Univ., Utica[4]
York College (City Univ. of NY), Queens
OH Antioch College of Antioch Univ., Yellow Springs
Cleveland State University, Cleveland
Franklin University, Columbus
God's Bible School and College, Cincinnati[1]
Ohio Univ., Southern Campus at Ironton, Ironton
Ohio University, Zaneville Campus, Zaneville
Shawnee State University, Portsmouth[4]
Union Institute, Cincinnati
University of Rio Grande, Rio Grande[1,4]
University of Toledo, Toledo[1,2]
Wilberforce University, Wilberforce[1]
Youngstown State University, Youngstown[1,2,3]
OK Mid-America Bible College, Oklahoma City[1]
Southern Nazarene University, Bethany[1]
University of Oklahoma, Norman[3]
OR Eastern Oregon State College, LaGrande[3]
Lewis & Clark College, Portland
Maryhurst College, Maryhurst
Oregon Institute of Technology, Klamath Falls
Oregon State University, Corvallis[3]
Portland State University, Portland
University of Oregon, Eugene
Western Oregon State College, Monmouth[3]
PA Dickinson College, Carlisle
Franklin and Marshall College, Lancaster[2]

	Gratz College, Melrose Park
	Lafayette College, Easton
	Lancaster Bible College, Lancaster[1]
	Muhlenberg College, Allentown
	Pennsylvania College of Technology, Williamsport[4]
	Susquehanna University, Selinsgrove[3]
PR	American University of Puerto Rico, Bayamon
	Colegio Universitario del Este, Carolina
RI	Johnson & Wales University, Providence
SC	Allen University, Columbia
	Benedict College, Columbia[1]
	Morris College, Sumpter
	Voorhees College, Denmark[1]
SD	Black Hills State University, Spearfish
	National College, Rapid City[1]
	Oglala Lakota College, Kyle
	Presentation College, Aberdeen
	Sinte Gleska University, Rosebud
TX	Angelo State University, Angelo[3]
	Arlington Baptist College, Arlington[1]
	Lamar University, Beaumont[3]
	Midwestern State University, Wichita Falls[3]
	Paul Quinn College, Dallas[1]
	Prairie View A&M Univ., Prairie View[3]
	Sam Houston State University, Huntsville[3]
	Southwest Texas State Univ., San Marcos[3]
	Southwestern Adventist College, Keene[1]
	Southwestern Assemblies of God Coll., Waxahachie
	Stephen F. Austin State Univ., Nacogdoches[1,3]
	Sul Ross State University, Alpine
	Tarleton State University, Stephenville[3]
	Texas A&M University - Commerce, Commerce[3]
	Texas A&M University - Kingsville , Kingsville[3]
	Texas A&M University, College Station[3]
	Texas College, Tyler[1]
	Texas Southern University, Houston[1]
	Texas Tech University, Lubbock[3]
	Texas Woman's University, Denton[3]
	University of Houston, Houston[3]
	University of Houston - Downtown, Houston[1]
	University of North Texas, Denton[3]
	University of Texas, Austin[3]
	University of Texas at Arlington, Arlington[3]
	University of Texas at Dallas, Richardson[3]
	University of Texas at El Paso, El Paso[3]
	University of Texas - Pan American, Edinburg[1]
	University of Texas of the Permian Basin, Odessa[3]
	University of Texas at San Antonio, San Antonio[3]
	Wayland Baptist University, Plainview[1]
	Wiley College, Marshall[1]
VA	National Business College, Roanoke
	Norfolk State University, Norfolk
VT	Burlington College, Burlington
	Goddard College, Plainfield
	Middlebury College, Middlebury[5]
	Southern Vermont College, Bennington
WA	Heritage College, Toppenish
WI	Univ. of Wisconsin-Superior, Superior[3]
	Univ. of Wisconsin-Green Bay, Green Bay[3]
WV	College of West Virginia, Beckley[1]

GRADUATE SCHOOLS WHICH HAVE DEEMPHASIZED TEST SCORES

Harvard Divinity School - GRE not required for Masters program
Johns Hopkins School of Medicine - SAT, ACT or GRE accepted in place of MCAT
Massachusetts School of Law at Andover - LSAT not required

Key:
1 = SAT/ACT used only for placement and/or academic advising
2 = SAT/ACT required only from out-of-state applicants
3 = SAT/ACT required only when minimum GPA or Class Rank is not met
4 = SAT/ACT required for some programs
5 = SAT/ACT not required but SAT-II series required (Middlebury requires SAT-II or AP or IB series, or ACT)
6 = University of Maryland University College is a separate institution from University of Maryland at College Park
7= Can petition university to be exempted from SAT/ACT

Source: *The College Handbook, 35th Edition, 1998* (College Entrance Examination Board) and telephone interviews.

Why Make The SAT & ACT Optional?

Test Scores Are Biased and Unreliable: Standardized college admissions tests are biased, imprecise and unreliable, and therefore should not be required for any college admissions process or scholarship award. If test scores are optional, students who feel that their strengths are reflected by their SAT or ACT scores can submit them, while those whose abilities are better demonstrated by grades, recommendations, a portfolio or a special project are assured that these will be taken into full account. Sometimes admissions officers use low test scores to automatically reject qualified candidates without even considering their schoolwork. That's simply not fair.

Test Scores Are Nearly Useless in College Admissions: Research shows that the SAT and ACT do not help colleges and universities make significantly better admissions decisions. The University of Chicago Press book, *The Case Against the SAT*, found that the SAT is "statistically irrelevant" in college admissions. It also proves that the SAT undermines the goal of diversity by reducing the number of qualified minority and lower-income students who are admitted.

Test Score Optional Works: The rapid growth of test score optional programs shows that no type of college needs to require the SAT or ACT. The list now includes large state schools, religious colleges, Historically Black Colleges, and many nationally competitive smaller schools.

How To Make Test Scores Optional

Introduce Legislation: Encourage a legislator to file a bill to drop test score requirements or make them optional in the admissions process in state colleges and universities. Then work to pass it.

Work to Change Your Own College's or University's Policy: Students, faculty and alumni/ae should question the use of tests at all decision points in admissions and placement. Educate policy-makers such as trustees, administrators and faculty leaders about the tests' problems and the benefits of test-optional policies: hold them accountable for the way your institution uses tests.

Questions To Ask About Test Score Use

Of Colleges, Universities and State Systems:

How does your school use the SAT and/or ACT? Are cut-off scores used, in violation of College Board and ACT guidelines? If so, do they apply to general admission or to particular programs? Does your school use any statistical formula which includes SAT/ACT scores to judge applicants' academic records?

Has the admissions office conducted an up-to-date study of test score validity in predicting college performance? Was the study conducted using the test maker's research design, or was it done by independent and impartial researchers? Did the study compare test scores only to first-year grades or to the more important and relevant four-year college grades or graduation rates? Did the study examine the academic records of racial, gender, income and geographic sub-groups separately? Do they take possible coaching into account when considering SAT or ACT scores?

How does your college report SAT & ACT scores in handbooks and brochures? Does it report simple averages or a range of scores? Does it include all entering students' scores in these figures, in compliance with the Good Practice Principles of the National Association for College Admission Counseling (NACAC)?

Regarding Scholarships:

Are SAT, ACT, PSAT or PLAN scores alone used to determine who gets an award? Are cut-off scores used to make "first-round" eliminations, or otherwise to determine eligibility for an award?

What is the gender and race breakdown of test score-based scholarship winners? How many become semi-finalists and finalists? Are qualified minority and female students losing out just because of their test scores?

Revised, September 1997

SUPPLEMENTAL MATERIALS

LEVEL 1 - 1 OF 1 CASE

KHADIJAH **SHARIF**, by her mother and next friend, AMIDA SALAHUDDIN, et al., individually and on behalf of all others similarly situated, Plaintiffs, v. **NEW YORK STATE EDUCATION DEPARTMENT**; and THOMAS SOBOL, Commissioner of Education, in his official capacity, Defendants

No. 88 Civ. 8435 (JMW)

UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF NEW YORK

709 F. Supp. 345; 1989 U.S. Dist. LEXIS 961

February 3, 1989, Decided

February 3, 1989, Filed

SUBSEQUENT HISTORY: [**1] As Amended February 7, 1989.

COUNSEL: Isabelle Katz Pinzler, Kary Moss, Deborah Ellis, Joan Bertin, Women's Rights Project, American Civil Liberties Union Foundation, New York, New York, Helen Hershkoff, John A. Powell, of counsel, American Civil Liberties Union, Vivenne W. Nearing, Robert Lewin, Madelaine R. Berg, Elizabeth A. Sherwin, Lisa Rosenthal, Mary S. Feinstein, Regan A. Shulman, Stroock & Stroock & Lavan, New York, New York, Robert M. Levy, New York Civil Liberties Union, New York, New York, Attorneys for Plaintiffs.

Marion R. Buchbinder, Anne B. Ehrenkranz, Assistant Attorneys General, New York, New York, Attorneys for Defendant.

Richard Hamburger, Block, Amelkin & Hamburger, Smithtown, New York, Attorney for Amicus Hewlett School District.

John F. Cannon, Edward W. Keane, Henry Christensen, III, Sullivan & Cromwell, New York, New York, Howard P. Willens, Christopher R. Lipsett, Edward J. Janger, Michael S. Rabb, Wilmer, Cutler & Pickering, Washington, District of Columbia, Attorneys for Amici College Board and Educational Testing Service.

JUDGES: John M. Walker, United States District Judge.

OPINIONBY: WALKER

OPINION: [*348] OPINION AND ORDER

JOHN M. WALKER, UNITED STATES DISTRICT JUDGE

This case raises the important question of whether New York State denies female students an equal opportunity to receive prestigious state merit scholarships by its sole reliance upon the Scholastic [**2] Aptitude Test ("SAT") to determine eligibility. To the Court's knowledge, this is the first case where female students are seeking to use the federal civil rights statute prohibiting sex discrimination in federally-funded educational programs to challenge a state's reliance on standardized tests. This case also presents a legal issue of first impression: whether discrimination under Title IX can be established by proof of disparate impact without proof of intent to discriminate.

After careful consideration, this Court finds that defendants are discriminating against female plaintiffs and their putative class in violation of Title IX and the equal protection clause of the U.S. Constitution. For the reasons set forth below, this Court enjoins the State Education Department and its Commissioner from awarding the merit scholarships at issue solely on the basis of the SAT.

I. The Present Action

In November, 1988, plaintiffs -- ten high school students, individually and behalf of all others similarly situated, and two organizational plaintiffs n1 -- brought an action for declaratory and injunctive relief against the State Education Department ("SED") and Commissioner of Education Thomas [**3] Sobol, in his official capacity, alleging that New York's exclusive reliance on the SAT to award Empire and Regents scholarships discriminates against female students in violation of the equal protection clause of the Fourteenth Amendments to the U.S. Constitution, Title IX of the Education Amendments of 1972, *20 U.S.C.* §§ *1681* et seq., as amended by the Civil Rights Restoration Act of 1987, Pub. L. 100-265, and the regulations pursuant to Title IX, 34 CFR Part 106. Plaintiff's proposed class is composed of "all female high school seniors in New York State who are or will be applicants for Regents College Scholarships and Empire State Scholarships of Excellence." Am. Complaint at para. 4. n2

n1 The students bring the suit by their parents and next friends. The organizational plaintiffs are the Girls Clubs of America and National Organization for Women.

n2 References are made as follows: Amended Complaint ("Am. Complaint); Affidavit ("Aff."); Testimony of Witness at January 23, 1989 hearing before this Court ("Witness T."); Exhibits ("Ex."); Plaintiffs' Memorandum ("P. Mem."); Plaintiff's Reply Memorandum (P. Reply Mem."); Plaintiff's Appendix ("P. App."); Defendants' Memorandum ("D. Mem.").

[**4]

In essence, plaintiffs contend that the SED's reliance up[illegible]e SAT disproportionately impacts female students without advancing the legislature's purpose of recognizing and awarding superior high school achievement. Plaintiffs argue: "(1) the SAT was not designed to measure academic performance and achievement, and cannot appropriately be put to that use, (2) but even if it did, the SAT discriminates against female applicants for scholarships, because it underpredicts academic performance for females as compared to males." P. Mem. at 5.

On December 21, 1988, plaintiffs filed an order to show cause as to why this Court should not issue a preliminary injunction [*349] enjoining SED's practice of exclusive reliance on SAT scores in awarding Regents and Empire scholarships. On that date, in a conference before this Court, defendants represented that, to cover the possibility of an adverse decision that would require the use of grade point averages (variously "GPAs") to determine scholarship eligibility, the SED would commence collection of GPAs immediately.

On January 12, 1989, defendants submitted a cross-motion for an order dismissing the complaint on the grounds that the Court lacks subject [**5] matter jurisdiction, that venue is improper, and that the complaint fails to state a claim on which relief can be granted.

On January 23, 1989, at a hearing, the Court accepted amici briefs of the Educational Testing Service ("ETS") and the College Entrance Board, and the Hewlett School District, and heard the testimony of educational testing experts, college deans of admission, and SED administrators with knowledge of the SED's programs of scholarship and testing practices. The Court has carefully examined the submissions of the parties, assessed the credibility of the witnesses and reviewed word by word the hearing transcript.

II. Background

A. Evolution of New York State Scholarship Awards

New York State, in one of the most extensive merit scholarship programs in the country, each year makes 26,000 academic achievement awards to New York's high school graduates. In order to understand the program's current purpose, a brief recitation of the program's evolution is appropriate.

1. Reliance Upon College Entrance Diplomas and Special Regents Examinations

New York State's scholarship program began in 1913, when the legislature first awarded 750 Regents Scholarships in the [**6] amount of $ 100 a year for a period of four years. Act approved Apr. 16, 1913, ch. 292, 1913 N.Y. Laws, § 527. At that time, the $ 100 stipend was sufficient to cover the tuition charged at most colleges in the State. n3 Thus, the award was in the nature of a full scholarship which would promote excellence in education by enabling "the most deserving and meritorious students . . . [to] obtain a college or university training, many of whom would be deprived of such education were it not for the wisdom of the State in providing these scholarships." n4

n3 Tenth Annual Report of the Education Department (March 16, 1914), D. Mem., Ex. 3.

n4 Id. at 30.

The 1913 law authorized the State Board of Regents to make all rules governing the award of the scholarships. Ch. 292, 1913 N.Y. Laws § 72. From 1913 until 1944, the State determined scholarship winners based upon the results of general high school Regents examinations, which also were the basis for granting the college entrance diploma. Lott, T. 64. n5

n5 The college entrance diploma was granted to pupils who pursued courses in approved New York secondary schools and passed the Regents examinations prescribed for such diploma. D. Mem. at 7, n.1.

[**7]

By 1944, the SED recognized that it could no longer rely solely upon general high school Regents examinations and college entrance diplomas in awarding Regents Scholarships. First, it was hard to rank students based upon the college entrance diploma because it was "difficult under the statute to know just what subjects to take into account in computing the averages of pupils." n6 Second, the nature of the high school general Regents exams had changed. Instead of measuring levels of achievement in the variety of courses taught in high school, the general Regents exams became a test of the bare minimum [*350] that a student needed to know to graduate from high school, and thus was a poor method for sorting students at the top of the spectrum. Lott T. at 73. Faced with these difficulties, in 1944 the SED developed a separate, more challenging Regents scholarship examination. Meno Aff. para. 2. The examination, in use for the next twenty years, was divided into two equal parts -- aptitude and achievement -- and was six hours long. Lott T. at 68.

[**8]

In 1974, New York State's scholarship program changed dramatically following a revaluation by a Select Committee on Higher Education. At the time the Regents scholarship program provided an annual award of $ 1,000 to a limited number of highly qualified students. The Committee found that the legislature's goal of substantially funding students' college educations as an incentive for select students to attend college was no longer being met. n7 The Committee found that the Regents scholarship examinations "can be criticized for actually rewarding the family background and upbringing that enables students to study and perform well, rather than an objective kind of merit." n8

Prompted by these concerns, the legislature restructured its awards, creating two types of awards: first, "general awards" which provide substantial monetary assistance, and second, "academic performance awards" which recognize achievement. Act of 1974, ch. 942, N.Y. Laws §§ 604, 605. Classifying Regents Scholarships as "academic performance awards," the legislature [**9] reduced the awards to a stipend of $ 250, and increased the number of awards to 25,000 to be allocated by county of residence. The legislature created additional awards for the least competitive high schools to enable them to receive at least one for every graduate from that school in the preceding year. Ch. 942, 1974 N.Y. Laws § 605(1)(b).

In the "general awards" category, the legislature created a Tuition Assistance Program ("TAP") to fund college students based upon financial need. The legislature made TAP awards available to all students enrolled in approved programs and are given to those who demonstrate the ability to complete such program's courses, and who satisfy financial need requirements established by the Commissioner of Education. Ch. 942, 1974 N.Y. Laws § 604; N.Y. Educ. Law. § 667(1) and (4) (McKinney 1988 & Supp. 1989).

2. Reliance Upon the SAT

In 1977, as a cost-cutting measure, the legislature eliminated its funding for the Regents scholarship examinations. P. App. I, Ex. 3. Instead, the legislature directed that the scholarships be awarded on the basis of "nationally established competitive examinations." Act approved Apr. 12, 1977, ch. [**10] 63, 1977 N.Y. Laws § 1. The SED considered examinations, including: (1) the SAT; (2) the American College Testing Program ("ACT"); (3) the Preliminary Scholastic Aptitude Test ("PSAT"); and (4) a combination of Achievement Tests, individual tests given in particularized areas of study, including biology, chemistry and foreign languages. Lott T. at 66. While the Achievement Tests measured performance in a wide variety of courses in a high school curriculum, the SED chose not to use them because few students take the exams and the SED did not want to require them to do so for Regents scholarship purposes. n9 The SED similarly rejected the ACT, a test much like the SAT, because few students take the ACT in New York. n10 The PSAT, a shorter version of the SAT given in the junior year of high school, was not considered a viable option because students [*351] took it too early in their high school careers.

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n6 Tenth Annual Report of the Education Department at 468 (1914), D. Mem. Ex. 3. Moreover, at that time the college entrance diploma was issued in two very different forms -- the college entrance diploma in arts and the college entrance diploma in science." Id.

n7 Report of the Select Committee on Higher Education, State of New York Legislative Document, No. 16, p. 9 (1974), D. Mem. Ex. 4.

n8 Id. at 29.

n9 For example, the most popular Achievement Test is taken by only 25,000 students. Lott T. at 68-69. The SED "felt it would be an imposition on students to require them to pay the additional fee to have to take these College Board achievement tests for scholarship purposes." Id.

n10 The SED, however, allowed a student to use the ACT as an alternative to the SAT, if the sole test that student had taken was the ACT.

[**11]

By process of elimination, then, the SED chose the SAT, the test taken by the greatest number of students. n11 Unlike the Regents scholarship examinations, the entire SAT is labeled an "aptitude" test, and the SAT only purports to test two subjects -- Math and English. D. Mem. at 8. Despite the SED's claim that the Regents Scholarship exam and the SAT are very similar, D. Mem. at 9, the State's own witness, Lynn Richbart, n12 testified that about 30% of the SAT questions would not have appeared on the Regents Scholarship exam. Richbart T. at 184. Richbart testified that SAT questions, unlike Regents Scholarship questions, often require that students remember concepts learned in earlier grade levels, or test students on material which is outside the high school curriculum. Richbart T. at 178-182. n13 Moreover, the SAT requires students to be able to answer questions designed specifically for the SAT, such as comparison and logic questions, that are not present on the Regents Scholarship exams. Richbart T. at 182. In addition, the SAT was never designed to test high school achievement. While high school performance may affect a student's performance on the SAT, the SAT does not cover [**12] the high school curriculum -- indeed there is no standard high school curriculum in New York State -- nor has it ever been validated to test achievement in high school. See validation discussion infra.

n11 The SED has attempted to justify its choice by arguing that some studies found a general correlation between scores obtained on the SAT and scores obtained on the now abandoned Regents scholarship scholarship exams. Lott. T. at 67, 70-71. These studies are discredited, however, because they did not draw any distinctions between men and women, but rather grouped them together in examining the correlation between the tests. Lott. T. at 72. For problems inherent in such a practice, see infra. Moreover, like the SAT, the Regents scholarship examinations were not validated as a measure of high school achievement.

n12 Associate of Bureau of Mathematics Education, SED.

n13 See also Shapiro T. at 44 (Regents questions are more content specific).

In 1986, the legislature created the more selective Empire State Scholarships of Excellence carrying an annual stipend of $ 2000 to be awarded to the 1,000 highest ranking Regents Scholarship winners. Act approved and [**13] effective Apr. 18, 1986, ch. 56, 1986 N.Y. Laws. The Governor's approval memorandum to the legislative bill creating the Empire Scholarship stated the purpose of these new awards as follows:

The Empire State Scholarship of Excellence Program will recognize academic achievement and provide a significant inducement for New York's brightest students to continue their studies in the State. These new scholarships will complement the efforts we are undertaking to acknowledge and enhance the educational performance of our brightest youth. (emphasis added).

1986 Legislative Annual, P. App. I, Ex. 3. Like the Regents scholarship, the Empire Scholarship is distributed by county of residence, and is renewable for five years. There is no minimum quota per high school for Empire State Scholarships.

3. Reliance Upon SATs and GPAs: The 1987 Experiment

In response to allegations that the SED's practice of relying solely upon the SAT in awarding Regents and Empire State Scholarships discriminated against females who consistently scored below males, the Board of Regents asked the Governor and legislature for $ 100,000 to develop a new scholarship achievement examination. The legislature [**14] declined to fund a special examination but, instead, amended the Education Law to require that the awards be based upon in part upon the student's grade point average ("GPA") as a measure of high school achievement. Senator Kenneth Lavalle, introducing the legislation, explained that the "statute intended to correct a gross inequity that pervaded the New York educational system caused by awarding of Regents College Scholarships and Empire State Scholarships of Excellence based solely on the results of a nationally administered [*352] standardized examination." n14 Lavalle Aff. para. 2, P. Reply Mem., Ex. 7. The SED specified in its announcement of the new legislation to high school principals that the law was changed "in order to provide for a better balance of male and female winners." P. App. I, Ex. 10.

n14 The State claims that "the primary intent of the legislation is to include a 'measure of high school performance' in the scholarship eligibility criteria because it was believed that high school performance is a better predictor of college performance than are SAT scores." D. Mem. at 10. In support of its claim, the State cites one isolated exchange from the Hearing on the Implementation of Changes in Criteria for Awarding Regents Scholarships and Empire State Scholarships of Excellence, New York State Senate and Assembly Standing Committees on Higher Education, May 25, 1988, pp. 19-21, P. App. I, attachment 4 (hereafter " May Hearing").

[**15]

The new legislation, for the first time, expressly stated that awards are to be based on a measure of "high school performance." Act approved and effective Aug. 7, 1987, ch. 837, 1987 N.Y. Laws §§ 1, 2. In doing so, the legislature altered the criteria for scholarship eligibility -- on a one-year, experimental basis -- to require the SED Commissioner to base awards on a formula which at least includes a measure of high school performance, and which may include nationally established competitive examinations. The amendment also required the Commissioner to "complete a statistical review of the gender, racial and ethnic composition of students awarded such scholarships within sixty days of the announcement of such scholarship award." Id. The legislation included a sunset provision that provided that the amendment would automatically lapse after one year if it were not affirmatively extended.

In May 1987, the SED examined possible measures of high school performance that could be used to select scholarship winners equitably. May Hearing at 9. The SED surveyed high school principals for information concerning grade point averages and class rank. Id. at 4. The possibility of [**16] using class rank as a measure of high school performance was dropped for three reasons: (1) it is not used by all schools; (2) it adversely affects students in highly selective schools; (3) it cannot be used to compare students from schools of difference size. Id. at 19; Lott T. at 72.

The SED also found drawbacks to the use of grade point averages. Because of the volume of scholarship applications it receives yearly, approximately 100,000, the SED would be unable to individually evaluate the GPA information submitted for each candidate as is done by college admission committees. Byrne aff. para. 3; Sharrow T. at 133. Also, the SED concluded that it was difficult to convert grade point average information to a common scale because: (1) there is a lack of comparability in the substance of the courses for which grades are given; (2) school grading practices differ from district to district and different grading scales are utilized; (3) schools differ in their practice and philosophy regarding weighing grades in order to take into account course difficulty; and (4) reported grades may reflect grade inflation. Meno Aff. paras. 2-5; Sharrow T. at 129; Meno T. at 140. On the other hand, [**17] the SED's survey indicated that there is a great deal of uniformity as to grading scales: 85 percent of the public schools and 73 percent of the private schools used a numerical score of 1-100. Results of High School Survey, P. App. I, Ex. 8.

Despite comparability difficulties, the SED chose to use GPAs as the best available measure of high school achievement. In awarding the Regents and Empire Scholarships for the 1988 graduates, the SED gave equal weight to students' SAT scores and GPAs, as the measure of high school performance. The SED, however, did not issue specific instructions to schools as to how grades should be reported. n15 As a [*353] result, some schools reported weighted grades, taking into account course difficulty, while others reported students' grades as they appeared on their transcripts. Hamburger T. at 3-4. Such inconsistent reporting practices touched off a controversy among school administrators who accused each other of cheating in weighting and reporting grades. Meno T. at 139.

n15 The GPA calculation was to be based upon three years of English, three years of social studies, two years of math, one year of science, and any three-year sequence in the student's major. Lott T. at 103. However, the SED issued no guidelines as to how to compute average GPAs. Kenneth Ormiston, SED Bureau Chief, told one school: "when calculating grade point average, you may use either weighted or unweighted grades." Letter of Nov. 23, 1987, P. App. I, Ex. 11. After receiving "hundreds of phone calls" about computation of grade point averages, one SED official, Jim Brown, wrote to Ormiston, urging that the policy be clarified. Brown Memo at 1, App. I, Ex. 12. However, SED officials did not issue clarifying instructions. See Hearings at 82-85.

[**18]

In 1988, under the procedure using a combination of grades and SATs weighted equally women received substantially more Regents and Empire Scholarships than in all prior years in which the SAT had been the sole criterion. P. App. I, Ex. 2. In both 1987 and 1988, young women comprised approximately 54 percent of the applicant pool for the scholarship, yet the results in 1988 when grades and SATs were used were markedly different. The results are summarized as follows:

	Winners of Empire State Scholarships of Excellence		Winners of Regents College Scholarships	
	Males	Females	Males	Females
1988	62	38	51	49
1987	72	28	57	43

When GPAs were used in 1988, the mean GPAs were: 85 for females and 84.4 for males. P. App. I, Ex. 2.

In May 1988, the legislature held hearings to evaluate the new practice of using both GPAs and SATs. Although use of GPA information reduced the disparity between the number of males and females receiving Scholarships, Commissioner Sobol recommended that the practice [**19] be discontinued, as soon as a new scholarship exam was developed, because: (1) use of GPA information put an increased burden on school staff; (2) use of GPA did not provide an equitable way to compare students from different schools; and (3) use of GPA would encourage students to avoid more challenging courses in order to obtain better grades for Scholarship purposes. May Hearing at 17-18. Sobol requested funds for a new scholarship exam but also recommended that, until a separate Regents Scholarship examination could be established, GPAs continue to be used in conjunction with SAT scores. Id. n16

n16 The Attorney for the SED addressed the Commissioner's apparent about face at trial by explaining, "at the time the statement was made, the statute had not yet expired. And he was assuming that if the statute was extended it would be made on a grade point average." T. at 199.

Despite Commissioner Sobel's recommendation, the legislature allowed to lapse the eligibility calculation "based on a formula which includes high school performance and which may include nationally competitive examinations." The standard thereby reverted to awards "on the basis of nationally established [**20] competitive examinations". In the 1988 legislative session, the SED received funds for a new scholarship examination, but has not yet received approval for a developed test. Meno Aff. para. 9. In September, 1989, the SED determined that it would award Regents and Empire Scholarships to 1989 high school graduates on the basis of SAT scores alone. It is the SED's sole reliance on SAT scores for 1989 graduates that plaintiffs complain denies them equal protection under the fourteenth amendment to the U.S. Constitution and violates Title IX of the Education Amendments of 1972.

B. Use of the SAT for Merit Scholarship Awards

1. ETS Recommendations and States' Practice

The Educational Testing Service ("ETS") developed the SAT in order to predict academic performance in college. Willingham Aff. at paras. 5-6. The ability of the SAT to serve this purpose has been statistically "validated." Willingham Aff. at paras. 16-19. n17 It is undisputed, however, that the SAT predicts the success of students differently for males and females. Willingham Aff. at 32. In other words, while the [*354] SAT will predict college success as well for males within the universe of males as for females within the [**21] universe of females, when predictions are within the combined universe of males and females, the SAT underpredicts academic performance of females in their freshman year of college, and overpredicts such academic performance for males. n18 The SAT has never been validated as a measure of past high school performance.

n17 "Validity refers to the degree to which evidence supports the inference and use of test scores." Title Aff. para. 11.

n18 Emery T. at 47. See also Title Aff. at paras. 6, 10-19, 29; Campbell Aff. at paras. 6, 12-17, 20; Behnke Aff. at paras. 2-7. When the regression equation is based on what is called a common regression line (with males and females together), a male and female with the same SAT scores will obtain different grade point averages, with the female's actual grade point average being somewhat higher than her predicted average. The male's actual grade point average will be somewhat lower than that predicted. Campbell Aff. at para. 11-14.

Both the ETS and the College Board, which administers the SAT, specifically advise against exclusive reliance upon the SAT, even for the purpose for which the SAT has been validated -- predicting future [**22] college performance. n19 Instead, ETS researchers recommend that college admissions counselors use a combination of high school grades and test scores because this combination provides the highest median correlation with freshman grades. Title Aff. at paras. 25-29. Additionally, the National Association of College Admission Counselors' ("NACAC") Code of Ethics requires member institutions to refrain from using minimum test scores as the sole criterion for admission, to use test scores in conjunction with other data such as school record and recommendations, and to refrain from using tests in any manner that may discriminate against students. n20 Thus, many colleges refrain from using test scores exclusively to decide admissions questions. See Stewart T. at 58-59; Sharrow T. at 122; Behnke Aff. at paras. 2, 7, 8; Mason Aff. at paras. 5, 6, 7.

> n19 See 1988 Profile of SAT and Achievement Test Takers - National Report p. iii (ETS, 1988), P. App. I, Ex. 7. The ETS argues only that "it would be incorrect to suggest . . . that the College Board and ETS guidelines are the product of any conclusion that the SAT is biased in any way . . ." ETS and College Board Amici Brief at 9.
>
> n20 Statement by NACAC on the role of Standardized Testing in the College Admission Process, P. App. II, Part 3, Ex. X; Richard Stewart, vice-president of committee for admissions practices, NACAC, T. at 58; NACAC Statement of Principles of Good Practice (December 1988); Burtnett Aff. at para. 3.

[**23]

Notwithstanding ETS and NACAC guidelines recommending against using the SAT as the sole basis on which to award scholarships or offer admissions, the SED adopted such a policy in 1974. New York State is one of only two states in the nation to rely solely on SAT scores for the award of state-sponsored merit scholarships instead of factoring in other measurements, such as grade point average or high school rank. May Hearing at 54; Lee Aff. at para. 3. Most states rely, at least in part, upon GPAs. For instance, California's extensive merit scholarship program, which gives nearly 17,000 awards annually, relies upon self-reported GPAs. Moss Aff. at paras. 1, 3, 5-6.

2. SAT as Measure of High School Performance

Both the Empire and Regents Scholarships are intended to reward past academic achievement of high school students, and to encourage those students who have demonstrated such achievement to pursue their educations in New York State. Lott T. at 91; Memo Aff. at para. 9. It is undisputed, however, that the SAT was developed and validated to serve a different purpose predicting performance in college.

Professional standards governing educational testing require statistical [**24] analysis ("validation") to be undertaken to ensure that a test is properly used for its intended purpose. Shapiro T. at 51. For example, the American Psychology Association's Standards on Psychological Testing require that "evidence of validity should be presented for the major types of inferences for which the use of a test is recommended." P. App. I, Ex. 6, at 13. Similarly, the College Board requires that tests be validated periodically "to ensure that they [*355] predict the expected outcome at a level acceptable for the institution's particular purpose." 1987-1988 ATP Guide for High Schools and Colleges. The SED has never validated the SAT for the purpose of measuring high school performance. Lott. T. at 89. n21

> n21 Indeed, without a prescribed curriculum (as in New York State), it would be very difficult to prove the content validity of the SAT. Shapiro T. at 42.

Notwithstanding the absence of validation studies, it is the SED's current position that the SAT provides a good measure of high school performance because it "measures skills and knowledge primarily developed in school." Byrne Aff. para. 17. The SED does not dispute that the SAT does not measure performance in all high [**25] school courses, but claims merely that the SAT partially tracks high school English and Math courses and thus tests achievement. Lott T. at 89. n22 The SED concedes that the SAT does not measure achievement in other subject matters such as science, social studies, and foreign languages. Moreover, the SED concedes that overall GPAs are a better measure of high school performance than SATs. Lott. T. at 90; See also Anastasi, P. App. II, Part 2, Ex. C.

> n22 The SED's claim that the SAT is an achievement test contradicts the position taken by Commissioner Sobol himself, on June 23, 1988 in the Appeal of Yick Moon Lee. P. Reply Mem., Ex. 4. In that Case, Sobol stated that SAT scores "are a measure of aptitude rather than achievement." (In Yick Moon Lee, a student appealed to the Commissioner to enjoin the practice in his school of using a combination of SAT scores and GPA to calculate class rank. Commissioner Sobol ordered that the practice be discontinued because SAT scores do

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not measure "actual student achievement.")

3. Statistical Impact on Men and Women Statewide

Males have outscored females on the verbal portion of the SAT since 1972, with an average score differential [**26] of at least 10 points since 1981. Males have also consistently outscored females on the mathematics portion, with an average differential of at least 40 points since 1967. n23 In 1988, for example, girls scored 56 points lower than boys on the test. The probability that these score differentials happened by chance is approximately about one in a billion and the probability that the result could consistently be so different is essentially zero. See Gray Aff. at para. 6.

n23 1988 Profile of SAT takers, The College Board, P. App. I, Ex. 7, p. iii. These undisputed results are summarized in Appendix B, infra.

Statisticians have attempted to explain the score differentials between males and females by removing the effect of "neutral" variables, n24 such as ethnicity, socioeducational status (parental education), high school classes, and proposed college major. However, under the most conservative studies presented in evidence, even after removing the effect of these factors, at least a 30 point combined differential remains unexplained. n25

n24 It is debatable whether all of these factors are indeed "neutral" and do not to some degree reflect systemic sex discrimination.

[**27]

n25 Shapiro T. at 50; Willingham Aff., Ex. 6. See also Clark and Grady at 18, P. App. II, Part 2, Ex. D; and Gamache and Novick, P. App. II, Part 3, Ex. M.

As a result of the State's practice of basing scholarship awards solely upon SAT scores, males have consistently received substantially more scholarships than females. In 1987 for example, males were 47 percent of the scholarship competitors, but received 72 percent of the Empire State Scholarships and 57 percent of the Regents Scholarships. n26 For Empire State Scholarships, these results represent 15.8 standard deviations from the mean; for Regents Scholarships, the difference represents 31.7 standard deviations. In other words, the probability that the Empire Scholarship results would occur by chance is less than one in a billion, and the probability of the [*356] Regents Scholarship results would occur by chance is even less. Shapiro T. at 29. n27

n26 According to the SED's own estimates of the 1988-89 competition, 56 percent of the winners of the Regents Scholarship will be male if only SAT results are used to determine scholarship winners despite the fact that 53 percent of all the competitors are female. Statistical review of the Awarding of the 1988 New York State Scholarships (April 1988), p. App. I, Ex. 2.

[**28]

n27 As statistical significance is generally recognized to be.05 standard deviations from the mean, there is no doubt that these figures are statistically significant. The reason why the regents results are more significant than the Empire results is that sample size greatly affects calculations of standard deviations, and 25,000 Regents awards are given annually as compared to only 1,000 Empires awards.

III. Discussion

A. Procedural Issues

At the outset, defendants argue that this Court should dismiss plaintiffs' complaint on three procedural grounds: first, this Court is without authority to issue the relief requested in this case because plaintiffs do not have standing to bring their claims; second, the Court lacks subject matter jurisdiction; and third, venue is improper. The Court will consider each of these arguments in turn.

1. Standing

In order to establish standing for the purposes of the constitutional "case or controversy" requirement, the general rule is that a plaintiff "must show that he personally has suffered some actual or threatened injury as a result of the putatively illegal conduct of the defendant," *Gladstone Realtors v. Village of Bellwood, [**29] 441 U.S. 91, 99, 60 L. Ed. 2d 66, 99 S. Ct. 1601 (1979)*, and that the injury is "likely to be redressed by a favorable decision." *Simon v. Eastern Kentucky Welfare Rights Organization, 426 U.S. 26, 38, 48 L. Ed. 2d 450, 96 S. Ct. 1917 (1976)*. Otherwise, the exercise of federal jurisdiction "would be gratuitous and thus inconsistent with the Article III limitation." *Id. at 38.*

More precisely, plaintiffs must demonstrate: (1) that the "interest sought to be protected is within the zone of interests protected or regulated by the statute or constitutional guarantee in question," *Association of Data*

Processing Service Organizations Inc. v. Camp, 397 U.S. 150, 153, 25 L. Ed. 2d 184, 90 S. Ct. 827 (1970), (2) "injury in fact," and (3) "causation in fact."

Plaintiffs have fulfilled the first standing requirement. The interest sought to be protected -- freedom from discrimination in the award of state scholarships -- is within the zone of interests to be protected by the fourteenth amendment and Title IX, Education Amendments of 1972, *20 U.S.C. § 1681.*

The second requirement, injury in fact, is satisfied by a showing of a likelihood of harm, if not actual harm. In *University of California Regents v. Bakke, 438 U.S. 265, 57 L. Ed. 2d 750, 98 S. Ct. 2733,* the Supreme Court found that a student had standing [**30] to challenge a school's allegedly discriminatory admissions policy, not because he could establish that he would have been admitted were it not for the challenged policy, but rather because his chances for admission were reduced by the policy. *Id. at 280-81 n.14* (Powell, J., concurring). See also, *McCleskey v. Kemp, 481 U.S. 279, 295 n.8, 95 L. Ed. 2d 262, 107 S. Ct. 1756 (1987); Heckler v. Mathews, 465 U.S. 728, 738, 79 L. Ed. 2d 646, 104 S. Ct. 1387 (1984); Gladstone, Realtors v. Village of Bellwood, 441 U.S. at 115.*

Plaintiffs here allege that their chances for winning a state merit scholarship are reduced by the SED's practice of basing such awards solely on SAT scores and that, therefore, they are less likely to receive benefits such as substantial public recognition, an enhanced ability to attract additional scholarships, and an increased opportunity to attend the college or university of their choice. n28 These allegations alone are sufficient to establish "injury in fact." n29

n28 See Plaintiff's Affidavits, App. II: Bonzon at para. 4; Hart at para. 3; Lewis at para. 5; **Sharif** at paras. 3, 4; Sultan at para. 2; Greenblatt at paras. 4, 5; Taylor at para. 8.

n29 Defendants argue that plaintiffs do not have standing because some female students' chances of winning scholarships will be reduced if a combination of grades and SATs are used to determine the awards. D. Mem. at 23. This is irrelevant. The fact is that as a group women's chances are improved. Plaintiffs would rarely succeed in educational testing cases if courts accepted defendants argument, because changes in any test has differing effects on a broad class of plaintiffs.

[**31]

[*357] Moreover, while plaintiffs need only establish a likelihood of injury, they have shown as to at least three plaintiffs a near certainty of injury if the SED is not enjoined. Defendants concede that plaintiffs Hart, Capodice, and Bozon probably will qualify for Regents Scholarships if eligibility is determined by using equally weighted GPA and SAT scores but will not qualify if SAT scores are the sole criterion. T. at 19, 207; Byrne Aff. at para. 10. These three plaintiffs alone are sufficient to establish standing to challenge the awarding practices for both Regents and Empire Scholarships since both are awarded from the same list of 25,000 names. n30 Because the claims raised by plaintiffs necessarily implicate the entire system, and any relief would require modification of that system, plaintiffs have standing to challenge both the Regents and Empire Scholarships even though they personally may not be eligible for the latter.

n30 The state awards 25,000 Regents scholarships of $ 250 and 1000 Empire Scholarships of $ 2000 to the top Regents scholarship winners.

The final requirement, causation in fact, necessitates that the injury be both "fairly traceable" to the defendant [**32] and "redressable." *Allen v. Wright, 468 U.S. 737, 753 n.19, 82 L. Ed. 2d 556, 104 S. Ct. 3315 (1984).* As with injury in fact, causation in fact does not require a showing of complete certainty. In the Second Circuit:

> All that is required is a showing that such relief be reasonably designed to improve the opportunities of a plaintiff not otherwise disabled to avoid the specific injury alleged. To ask the plaintiffs to show more than that they would 'benefit in a tangible way from the court's intervention,' would be to close our eyes to the uncertainties which shroud human affairs.

Huntington Branch N.A.A.C.P. v. Town of Huntington, 689 F.2d 391, 394 (2d Cir. 1982) (emphasis added) (plaintiffs seeking funding to construct housing project had standing to challenge zoning ordinance, even though no federal housing money was presently available).

In the present case, plaintiffs allege that the SED's reliance upon the SAT is the direct cause of their injury. Injunctive relief compelling the SED to use an alternative procedure with a less discriminating effect would redress their grievance. Defendants argue that because variables other than sex might account for the disparate number of women receiving low SAT [**33] scores -- and, consequently, not receiving scholarships -- there is no causation. D. Mem. at 23. This, however, is a dispute on the merits of plaintiffs' claim. Standing does not depend on whether plaintiffs actually will prevail.

See e.g., *McCleskey, 481 U.S. 279, 95 L. Ed. 2d 262, 107 S. Ct. 1756.*

The fact that some of the named plaintiffs may not receive scholarships if the injunction is granted presents no barrier to this suit. The claim rests on the alleged discriminatory nature of the system as a whole. In analogous circumstances, the Supreme Court held that a black would-be resident had standing to challenge discriminatory zoning practices, because he intended to apply for housing, although he might not actually obtain it. ***Village of Arlington Heights v. Metropolitan Housing Authority,*** *429 U.S. 252, 264, 50 L. Ed. 2d 450, 97 S. Ct. 555 (1977).* Here, as in Arlington, if the requested relief is granted, the plaintiffs would no longer suffer the injury complained of. See also ***Pennell v. City of San Jose,*** *485 U.S. 1, 108 S. Ct. 849, 99 L. Ed. 2d 1 (1988)* (landlords had standing to challenge rent control ordinance when there was a likelihood of enforcement of the ordinance and concomitant probability that rent would be reduced below [**34] what some landlords could afford); ***Duke Power Co. v. Carolina Environmental Study Group,*** *438 U.S. 59, 57 L. Ed. 2d 595, 98 S. Ct. 2620 (1978)* (standing to challenge act limiting liability in the event of a nuclear accident where "substantial likelihood" that construction of plants could not be completed without liability limit).

[*358] Since we find plaintiffs have sufficiently alleged injury in fact and causation in fact and that plaintiffs are within the requisite zone of interests, we conclude that plaintiff have standing.

2. Jurisdiction

Defendants argue that this Court lacks subject matter jurisdiction over plaintiffs' equal protection claim against the SED. This argument is wholly meritless.

While it is true that the Eleventh Amendment bars suits against states, ***Pennhurst State School & Hospital v. Halderman,*** *465 U.S. 89, 100, 79 L. Ed. 2d 67, 104 S. Ct. 900 (1984),* the "important exception to this general rule [is that] a suit challenging the constitutionality of a state official's action is not one against the state." *Id. at 102.* Moreover, Congress has specifically provided that a state shall not be immune from suit under Title IX. *42 U.S.C. § 2000d-7.* Thus, this Court has jurisdiction pursuant to *28 U.S.C. §§ 1331* and 1343 (3) and [**35] (4).

3. Venue

Defendants also challenge the venue of this action. They argue that it is more properly brought in the Northern District of New York where the defendants are located. The Court finds this argument unpersuasive.

Venue in this case is governed by *28 U.S.C. § 1391*(b), which provides:

A civil action wherein jurisdiction is not founded solely on diversity of citizenship may be brought only in the judicial district where all defendants reside, or in which the claim arose, except as otherwise provided by law.

Where the claim arose in more than one district, "a plaintiff may chose between those two (or conceivably even more) districts that with approximately equal plausibility -- in terms of the availability of witnesses, the accessibility of other relevant evidence, and the convenience of the defendant (but not of the plaintiff) - may be assigned as the locus of the claim." *Leroy v. Great Western, 443 U.S. 173, 185, 61 L. Ed. 2d 464, 99 S. Ct. 2710 (1979).*

Applying the Leroy holding, in a similar case to this, Judge Sofaer, formerly of this district, held that state security employees could bring suit against state officials in the Southern District. ***Cheeseman v. Carey,*** *485 F. Supp. 203 [**36] (S.D.N.Y. 1980).* While the state decisions in question had been made in Albany, the court held that the Southern District had a "substantial relationship" to the claim and, thus, the claim "arose" in the Southern District as well the Northern District. *Id. at 212.* In Cheeseman, half of the plaintiff class is located in the Southern District and thus, the court concluded, the challenged practice had been "profoundly felt" in the district.

In this case, the effects of the SED's policy have similarly been profoundly felt in the Southern District. Female students attending New York City schools are harmed more than elsewhere by the SED's exclusive reliance on SAT scores because they are even less likely to qualify for their scholarships than their female counterparts throughout the state. Moreover, these students take the SAT in the Southern District. Thus, while plaintiffs' claims also arise in the Northern District, they arise in the Southern District as well.

The Southern District is at least an "equally plausible forum." New York City is more accessible for the many expert witnesses who live outside New York. Amici ETS and College Board have offices in the City. It is not overly [**37] burdensome for state officials to travel to New York. Defendants have not demonstrated that evidence would somehow be less accessible if this case is maintained in the Southern District.

Finally, the Court concludes that because speed of disposition is important in this case, the interests of justice weigh against a transfer. This Court is familiar with the detailed facts of the case, and substantial proceedings have already occurred before this Court. See e.g., *Cheeseman, supra, 485 F. Supp. at 215.* This is not a case where plaintiffs may have chosen their place of venue to harass defendants or to avoid precedents in the Northern District. It appears that plaintiffs merely have chosen [*359] a forum that is convenient for the named plaintiffs, teenagers who live in the New York City area.

It is well-established that a plaintiff's choice of forum "is entitled to great weight and will not be disturbed except upon a clear-cut showing that convenience and justice for all parties demands that the litigation proceed elsewhere." *Eastern Refractories v. Forty Eight Insulations, 668 F. Supp. 183, 187 (S.D.N.Y. 1987),* citing *Gulf Oil Corp. v. Gilbert, 330 U.S. 501, 91 L. Ed. 1055, 67 S. Ct. 839 (1947).* Such a showing [**38] has not been made. Accordingly, accordingly defendants' venue motion is denied.

B. The Preliminary Injunction

The standard for reviewing a request for a preliminary injunction is well established.

> In this circuit, a preliminary injunction can be granted if plaintiff shows irreparable injury, combined with either a probability of success on the merits, or a fair ground for litigation and a balance of the hardships in his favor.

The Video Trip Corporation v. Lightning Video, Inc., 866 F.2d 50, slip. op. at 1018, (2d Cir. January 20, 1989) (emphasis added), citing *Wainwright Securities, Inc. v. Wall Street Transcript Corp., 558 F.2d 91, 94 (2d Cir. 1977),* cert. denied, *434 U.S. 1014, 54 L. Ed. 2d 759, 98 S. Ct. 730, 196 U.S.P.Q. (BNA) 864 (1987).*

A court need not certify a class prior to granting a preliminary injunction. Defendants improperly rely upon *Hurley v. Ward, 584 F.2d 609 (2d Cir. 1978),* to support their contention that any injunction must be limited to the individual named plaintiffs. Hurley is inapposite because it was brought by an individual plaintiff who did not even seek class certification and members of the purported class were not similarly situated.

Contrary to defendants' argument, courts have [**39] consistently granted relief that would have a class-wide effect without first certifying a class. Indeed, in this Circuit, courts have held that where a judgment would run to the benefit not only of the named plaintiffs but also of all others similarly situated, as it would here, class designation is "largely a formality." *Galvan v. Levine, 490 F.2d 1255, 1261 (2d Cir. 1973),* cert. denied, *417 U.S. 936, 41 L. Ed. 2d 240, 94 S. Ct. 2652 (1974).* See also *Hurley, supra, 584 F.2d at 611-612.* n31

n31 Moreover, the Supreme Court has held in connection with statute of limitations questions that class-wide relief is appropriate unless and until the class is dismissed. Crown, *Cork and Seal Co. v. Parker, 462 U.S. 345, 76 L. Ed. 2d 628, 103 S. Ct. 2392 (1983); American Pipe and Construction Co. v. Utah, 414 U.S. 538, 551, 38 L. Ed. 2d 713, 94 S. Ct. 756 (1974).*

Thus, this Court need not certify a class in this case before determining whether plaintiffs have demonstrated the requirements for a preliminary injunction: irreparable harm and a likelihood of success on the merits. n32

n32 While plaintiffs filed a motion for class certification of January 30, 1989, the Court will not consider this motion until defendants' have filed their response.

1. Irreparable Harm [**40]

Plaintiffs have demonstrated that if the SED is not enjoined from its current practices, they will suffer irreparable harm. Defendants do not dispute that Regents and Empire State scholarships are prestigious awards, and that students benefit from receiving such awards. Rather, they merely argue that Regents scholarships are worth less than Empire scholarships, and because it is unlikely that any of the named plaintiffs would receive Empire awards, plaintiffs have not shown irreparable harm. D. Mem. at 20. This is defendants' standing argument that was dismissed above. To reiterate: first, while named plaintiffs may not receive Empire awards, some members of the putative class would qualify for such awards; second, all plaintiffs' chances are reduced by the SED's actions; and third, defendants concede that at least three named plaintiffs will be harmed by the SED's acts. Byrne Aff. para. 10.

"When an alleged deprivation of a constitutional right is involved, most courts hold that no further showing of irreparable injury [*360] is necessary." *Mitchell v. Cuomo, 748 F.2d 804, 806 (2d Cir. 1984).* Plaintiffs here go further than merely alleging deprivation of a constitutional right [**41] -- they document the harm that would result if the SED continued its practice of reliance upon the SAT. n33 Thus, plaintiffs clearly have demonstrated "irreparable harm."

n33 See P. Mem. at 20-23; Bonzon Aff. at para. 4; Hart Aff. at para. 4; Lewis Aff. at para. 5; Mackenzie Aff. at para. 3; **Sharif** Aff. at paras.

3, 4; Sultan Aff. at para. 2. Defendants have not disputed these affidavits.

2. Likelihood of Success on Merits

a. Title IX

Plaintiffs invoke the protections provided by Title IX, which prohibits sex discrimination in federally-funded educational programs. n34 Plaintiffs do not claim that defendants have intentionally discriminated against them based on their sex. Rather, they claim that defendants' practice of sole reliance upon SAT scores to award prestigious state scholarships disparately impacts female students. To this Court's knowledge, this is the first disparate impact case challenging educational testing practices under Title IX. n35

n34 Title IX provides, in pertinent part:

(a) No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving any federal assistance.

20 U.S.C. § 1681(a). Recently, Congress broadened the scope of Title IX so that it applies institution-wide. Civil Rights Restoration Act, *20 U.S.C. § 1687* (became law on March 22, 1988). This Act directly reversed the Supreme Court's decision in *Grove City College v. Bell, 465 U.S. 555, 79 L. Ed. 2d 516, 104 S. Ct. 1211 (1984)*, which had limited the coverage of Title IX to specific programs or activities which actually receive federal funds.

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n35 The most common Title IX cases challenge regulations that prohibit female students from participating in high school sports. In general, courts have had little difficulty in concluding that such regulations deny female students equal protection of the laws. See, e.g., *Brenden v. Independent School District, 477 F.2d 1292 (8th Cir. 1973); Morris v. Michigan State Board of Education, 472 F.2d 1207 (6th Cir. 1973); Hoover v. Meiklejohn, 430 F. Supp. 164 (D. Col. 1977).*

Neither the Supreme Court nor any court in the Second Circuit has determined whether intent must be shown in Title IX cases. n36 This Court, however, is not without substantial guidance. Recognizing that "Title IX was patterned after Title VI of the Civil Rights Act of 1964," *Grove City College v. Bell, 465 U.S. 555, 566, 79 L. Ed. 2d 516, 104 S. Ct. 1211*, courts examining Title IX questions have looked to the substantial body of law n37 developed under Title VI, *42 U.S.C. § 2000d*, which prohibits race discrimination in federally-funded programs, and Title VII, *42 U.S.C. § 2000e*, which prohibits discrimination in employment. See, e.g., *Mabry v. State Board of Community Colleges and Occupational Education, 813 F.2d 311, 317* [**43] (10th Cir.), cert. denied, *484 U.S. 849, 108 S. Ct. 148, 98 L. Ed. 2d 104 (1987); Haffer v. Temple University, 678 F. Supp. 517, 539 (E.D. Pa. 1987).*

n36 Judge Sweet of this district applied a disparate impact analysis under Title IX in *Fulani v. League of Women Voters Educ. Fund, 684 F. Supp. 1185 (S.D.N.Y. 1988).* However, he carefully assumed that a disparate impact is appropriate under Title IX without actually deciding that such was the case. *Id. at 1193.*

n37 Many of these cases have challenged teacher competency tests as being racially discriminatory. See generally Rebell, Disparate Impact of Teacher Competency Testing on Minorities: Don't Blame the Test-Takers -- or the Tests, 4 YALE L. & POL. REV. 375 (1986).

In *Guardians Association v. Civil Service Commission, 463 U.S. 582, 77 L. Ed. 2d 866, 103 S. Ct. 3221 (1983)*, the Supreme Court held that a violation of Title VI itself requires proof of discriminatory intent. However, a majority also agreed that proof of discriminatory effect suffices to establish liability when a suit is brought to enforce the regulations promulgated under Title VI, rather than statute itself. See also *Alexander v. Choate, 469 U.S. 287, 293-294, [**44] 83 L. Ed. 2d 661, 105 S. Ct. 712 (1985); Latinos Unidos de Chelsea v. Secretary of Housing, 799 F.2d 774, 785 n. 20 (1st Cir. 1986).*

Plaintiffs' amended complaint explicitly alleges both violations of Title IX and its implementing regulations. This Court [*361] finds no persuasive reason not to apply Title VI's substantive standards to the present Title IX suit. Under analogous circumstances, one district court reasoned:

The Title IX regulations, like the Title VI regulations at issue in Guardians, do not explicitly impose an intent requirement. As there is no reason that a Title IX plaintiff should have a higher burden of proof than a Title VI plaintiff, see, e.g., *Cannon v. University of Chicago, 441 U.S. 677, 60 L. Ed. 2d 560, 99 S. Ct. 1946 (1979)* (interpretation of Title IX dependent upon interpretation of Title VI); *Chowdhury v. Reading Hospital & Medical Center, 677 F.2d 317 (3d Cir. 1982)*, cert. denied, *463 U.S. 1229 [77 L. Ed. 2d 1411, 103 S. Ct. 3569]* (1983) . . ., I hold that plaintiffs need not prove discriminatory intent to succeed on their claim.

Haffer, 678 F. Supp. at 539-540.

The Title IX implementing regulations, like the regulations promulgated under Title VI, to which Title IX is frequently compared, are consistent with this interpretation [**45] of the comprehensive reach of the statute. Several Title IX regulations specifically prohibit facially neutral policies. For example, the provision governing admissions procedures, 34 CFR § 106.21(b)(2), prohibits a recipient from

> administer[ing] or operat[ing] any test or other criteria for admission which has a disproportionately adverse effect on persons on the basis of sex unless the use of such test or criterion is shown to predict validly success in the education program or activity in question and alternative tests or criteria which do not have such a disproportionate adverse effect are shown to be unavailable.

See also 34 C.F.R. §§ 106.22, 106.23(b), 106.34(d), 106.37(b), 106.52, and 106.53.(b). n38

Based upon a reading of the Title IX regulations, as well as the decisions that apply them, the Court finds that Title IX regulations, like the Title VI regulations at issue in Guardians, prohibit testing practices with a discriminatory effect on one sex. Consequently, plaintiffs need not prove intentional discrimination.

In Title VII testing cases, the Supreme Court developed [**46] a three-pronged formulation to analyze disparate impact claims. Under this scheme, plaintiffs first must show that a facially neutral practice has a disproportionate effect. After such a showing, the burden shifts to defendants to prove a substantial legitimate justification -- a "business necessity" -- for its practice. The plaintiff then may ultimately prevail by offering either an equally effective alternative practice which has a less of a discriminatory impact, or proof that the legitimate practices are a pretext for discrimination. *Connecticut v. Teal, 457 U.S. 440, 73 L. Ed. 2d 130, 102 S. Ct. 2525 (1982); Albemarle Paper Co. v. Moody, 422 U.S. 405, 45 L. Ed. 2d 280, 95 S. Ct. 2362 (1975); McDonnell Douglas Corp. v. Green, 411 U.S. 792, 36 L. Ed. 2d 668, 93 S. Ct. 1817 (1973); Griggs v. Duke Power Co., 401 U.S. 424, 28 L. Ed. 2d 158, 91 S. Ct. 849 (1971); Sheehan v. Purolator, 839 F.2d 99, 104 (2d Cir. 1988).* n39

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In educational testing cases, instead of requiring defendants to demonstrate a "business necessity," courts have required defendants to show an "educational necessity." For example, the Eleventh Circuit, in *Georgia State Conf. of Branches of NAACP v. State of Georgia, 775 F.2d 1403 (11th Cir. 1985)*, held that defendants had a burden of proving that their practices in question bore "a manifest demonstrable relationship to classroom education." *Id. at 1418.* See also *Board of Education v. Harris, 444 U.S. 130, 151, [*362] 62 L. Ed. 2d 275, 100 S. Ct. 363 (1979)* ("educational necessity" analogous to "business necessity").

Applying the Title VII formulations to this Title IX case as modified to take into account "educational necessity," this Court finds that plaintiffs have demonstrated a likelihood of success on the merits. Plaintiffs have met their burden of establishing a prima facie case through persuasive statistical evidence and credible expert testimony that the composition of scholarship winners tilted decidedly toward males and could not have occurred by a random distribution. See Gray Aff. at para. 6; Shapiro T. at 29-30. Defendants have failed to attack plaintiffs' evidence of statewide disparate [**48] impact but have instead focused in an ad hoc fashion on individual schools and counties. In a case alleging statewide discrimination, such a focus does not rebut plaintiffs' statewide prima facie case.

Plaintiffs, moreover, have established that the probability, absent discriminatory causes, that women would consistently score 60 points less on the SAT than men is nearly zero. Gray Aff. at paras. 5-7. Defendants concede that at least half of this differential cannot be explained away by "neutral" variables. Based upon the totality of evidence, then, this Court finds that plaintiffs

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n38 The Tenth Circuit made a similar observation in *Mabry, 813 F.2d at 316-17 n.6.*

n39 Defendants' mistakenly rely upon Justice O'Connor's plurality opinion in *Watson v. Fort Worth Bank & Trust, 487 U.S. 977, 108 S. Ct. 2777, 2790, 101 L. Ed. 2d 827 (1988)*, to argue that the Supreme Court now requires a greater quantum of proof in disparate impact cases. The portion of Justice O'Connor's opinion containing the alleged change in law was only joined by three other members of the Court. Thus, it is not law. The Court's holding in Watson, that subjective employment practices can be challenged under disparate impact analysis, does not affect the outcome of this case.

have demonstrated that the State's practice of sole reliance upon the SAT disparately impacts young women.

Thus, to prevail, defendants must show a manifest relationship between use of the SAT and recognition and award of academic achievement in high school. The Court finds that defendants have failed to show even a reasonable relationship between their practice and their conceded purpose. The SAT was not designed to measure achievement in high school and was never validated for that purpose. Instead, in arguing that the SAT somehow measures high school performance, defendants rely upon anecdotal [**49] evidence that the SAT partially tracks what is generally learned in high school Math and English courses. This argument is meritless.

Plaintiffs have offered substantial evidence that the SATs do not mirror high school Math and English classes. The makers of the SAT describe the test as an "aptitude test;" it does not purport to measure what is learned in classrooms but to predict success in college. The testing format of the SAT measures students' ability to take tests at least as much as it measures substantive material. Defendants' claims that the SAT is an achievement test are contradicted by defendant Sobol's own recent pronouncement that SAT scores "are a measure of aptitude rather than achievement." Appeal of Yick Moon Lee (June 23, 1988), P. Reply Mem. Ex. 4.

Moreover, even if SATs provided a partial measurement of what is learned in high school Math and English, these two courses constitute only 20 percent of a high school student's studies. The SAT fails to provide any measure of what a student learns in foreign language, science, and social studies courses. Moreover, there can be no serious claim that a test given on one single morning can take into account a student's [**50] diligence, creativity and social development and work habits in that student's environment -- all part of high school achievement. After a careful review of the evidence, this Court concludes that SAT scores capture a student's academic achievement no more than a student's yearbook photograph captures the full range of her experiences in high school.

Plaintiffs have offered an alternative to sole reliance upon the SAT: a combination of GPAs and SATs. The SED's use of this alternative in 1988 sharply reduced the disparate impact against females caused by the use of the SAT alone. A significantly greater number of female students received scholarships in 1988 than in each prior year in which the SED relied solely upon the SAT. P. App. I, Ex. 2. Defendants concede that females had a greater opportunity to receive scholarships under the combination system. Defendants also concede that grades are the best measure of high school achievement within the walls of a single school. Instead, they argue that since there is a disparity among [*363] schools and their grading systems it is both unfair and impossible to use grades as part of the scholarship eligibility determination. Defendants plan instead [**51] to develop a statewide achievement test. While this Court does not dispute the apparent advantages of a statewide achievement test -- if indeed a valid test can be developed -- it does not agree that pending the implication of such a test, use of grades would be either unfair or infeasible.

While a combination system -- using both GPAs and SATs -- is not a perfect alternative, it is the best alternative presently available. The SED is concerned that students in academically superior high schools not be disadvantaged by the use of GPAs. This concern is addressed by the combination system because in effect grades would be weighted by SATs. The SAT component which cannot properly itself measure achievement serves to balance the grade component that does. In this way, the SED's concern that use of grades alone will deprive good students in superior high schools of scholarships is ameliorated. Also, as a testing expert explained at the hearing, few students will be displaced if a combination system is used:

> What happens when you add GPA in with the SAT is you eliminate people who had sufficiently high SATs but low grade point averages. And they get replaced by people with slightly lower [**52] SATs who have higher -- very high grade point averages. So the movement of individuals is not really all that severe, it's . . . really just taking scholarships away from the high SAT performers who did not actually achieve in high school. . . .

Shapiro T. at 36. More importantly, the combination system would be "fair" in the larger sense of the word, because it would better advance the state's goal of awarding high school performance and would better provide all students -- not just male students or students from selective schools -- with an equal opportunity to compete for prestigious state scholarships.

Like its fairness argument, the SED's feasibility argument lacks merit. The SED contends that if it uses GPAs in awarding scholarships, the GPAs will not be in hand until February 24, 1988, the awards process will extend 16 weeks thereafter and, thus, it will be difficult to inform winners prior to college acceptance dates. The Court rejects this argument. First, based upon evidence detailing the time that is necessary to process scholarship applications, the Court finds that the awards process can be completed in substantially less than 16 weeks. n40 Second, as of the hearing [**53] before the Court on

December 21, 1988, the defendants have been on notice that GPAs may be needed and on that date represented to the Court that they had commenced collection of GPAs. The defendants -- not the plaintiffs or the Court -- selected February 24 as the date grade calculations must be submitted to the SED, and then waited until January 13 to notify schools of that fact. The Court can only assume the SED did so consistent with using GPAs in a timely fashion and, in any event, the SED cannot use its own delay to justify continued reliance upon a discriminatory practice.

> n40 While the Court will not play the role of administrator and detail the time saving techniques that the SED could use, the Court does note that the SED could save considerable time if it notifies students of their awards by listing names in a New York newspaper, a procedure used successfully by the New York Board of Bar Examiners.

The SED cannot justify its discriminatory practice because any alternative would be more difficult to administer. All states giving merit scholarships awards, with the exception of New York and Massachusetts, use GPAs, without concern for either administrative difficulties, [**54] grade inflation or the comparability of grades. Lee Aff., P. Reply Mem. Ex. 5; App. I, Ex. 14. Any administrative difficulties that the SED experienced in 1988, when it used a combination system, were attributable to the SED's own failure to implement and clarify specific guidelines for the collections of grades, and to provide any enforcement mechanisms to guard against cheating. While the Court, like the amici Hewlett School District, does not condone cheating or inaccuracies in grade reporting, it is not the Court's role to police the SED's [*364] scholarship program. The Court notes, however, that to verify accuracy, the SED could follow the practice of many states and require school administrators to submit a signed certificate of accuracy.

Faced with a conflict between the SED's administrative concerns on the one hand, and the risk of substantial discriminatory harm to plaintiffs on the other, the Court has little difficulty in concluding that the balance of hardships tips decidedly in plaintiffs' favor. See *Mitchell v. Cuomo, 748 F.2d 804, 808 (2d Cir. 1984)*. The Court finds that plaintiffs have offered a feasible alternative to sole reliance upon SATs. Accordingly, the Court finds [**55] that plaintiffs have demonstrated a likelihood of success on the merits of their Title IX claim and, thus, a preliminary injunction is warranted.

b. Equal Protection

Alternatively, a preliminary injunction is warranted because plaintiffs also have established a likelihood that they will succeed on their equal protection claim. The classification of scholarship applicants solely on the basis of SAT scores violates the equal protection clause of the Fourteenth Amendment because this method is not rationally related to the state's goal of rewarding students who have demonstrated academic achievement.

Under the lowest standard of equal protection review -- the "rational relationship standard" -- "the State may not rely on a classification whose relationship to an asserted goal is so attenuated as to render the distinction arbitrary or irrational." *City of Cleburne v. Cleburne Living Center, 473 U.S. 432, 446, 87 L. Ed. 2d 313, 105 S. Ct. 3249 (1985)*. Although considerable deference is given to the decisions of legislators and state administrators under the rational basis test, the test "is not a toothless one." *Baccus v. Karger, 692 F. Supp. 290, 298 (S.D.N.Y. 1988)* (invalidating New York bar rule that required [**56] applicants for bar admission to have commenced the study of law after their 18th birthday), citing *Schweiker v. Wilson, 450 U.S. 221, 234, 67 L. Ed. 2d 186, 101 S. Ct. 1074 (1980)*. In a long line of cases, the Supreme Court has applied rational basis scrutiny to strike down legislation where the permissible bounds of rationality were exceeded. See e.g., *Hooper v. Bernalillo County Assessor, 472 U.S. 612, 86 L. Ed. 2d 487, 105 S. Ct. 2862 (1985); Williams v. Vermont, 472 U.S. 14, 86 L. Ed. 2d 11, 105 S. Ct. 2465 (1985); Metropolitan Life Insurance v. Ward, 470 U.S. 869, 84 L. Ed. 2d 751, 105 S. Ct. 1676 (1985); United States Department of Agriculture v. Moreno, 413 U.S. 528, 37 L. Ed. 2d 782, 93 S. Ct. 2821 (1973)*.

For the reasons stated above, the SED's use of the SAT as a proxy for high school achievement is too unrelated to the legislative purpose of awarding academic achievement in high school to survive even the most minimal scrutiny. The evidence is clear that females score significantly below males on the SAT while they perform equally or slightly better than males in high school. Therefore, the SED's use of the SAT as the sole criterion for awarding Regents and Empire Scholarships discriminates against females and, since such a practice is not rationally related to the legislative purpose, it unconstitutionally denies young [**57] women equal protection of the laws and must be enjoined on that ground as well.

IV. Conclusion

Defendants' practice of relying solely upon SAT scores in awarding Regents and Empire Scholarships deprives young women of the opportunity to compete equally for these prestigious scholarships in violation of both Title IX and the Constitution's equal protection clause.

Defendants are hereby ordered to discontinue such discriminatory practices and, instead, to award Regents and Empire Scholarships in a manner that more accurately measures students' high school achievement. For the present year, the best available alternative is a combination of grades and SATs. The SAT component is justified, not as a measure of achievement, but to weight the GPA component. The Court, however, does not limit the SED's discretion to develop [*365] other alternatives in the future, including a statewide achievement test.

SO ORDERED.

Dated: February 3, 1989, New York, New York

Appendix: Mean SAT Scores for College-Bound Seniors *

	Verbal		Math	
	Males	Females	Males	Females
1988	435	422	498	455
1987	435	425	500	453
1986	437	426	501	451
1985	437	425	499	452
1984	433	420	495	449
1983	430	420	493	445
1982	431	421	493	443
1981	430	418	492	443
1980	428	420	491	443
1979	431	423	493	443
1978	433	425	494	444
1977	431	427	497	445
1976	433	430	497	446
1975	437	431	495	449
1974	447	442	501	459
1973	446	443	502	460
1972	454	452	505	461
1971	454	457	507	466
1970	459	461	509	465

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*1988 Profile of the SAT (ETS), P. App. 1, Ex. 7.

[**58]

SPECIAL REPORT:

Why the End of Affirmative Action Would Exclude All But a Very Few Blacks From America's Leading Universities and Graduate Schools

By Theodore Cross and Robert Bruce Slater

There are strong nationwide pressures to establish race-blind admissions procedures in American institutions of higher education. As a consequence of the passage of Proposition 209 in California, the Hopwood Court of Appeals ruling in Texas, and current proposals in Congress to ban racial preferences for institutions that conduct business with the federal government, it is important to assess the impact of these changes. In a race-neutral admissions environment, it is probable that standardized tests will take on an even more important role in determining who is, and who is not, awarded places in the first-year classes at the nation's highest-ranked undergraduate colleges as well as in the country's leading graduate and professional schools. Our calculations suggest that if standardized tests become the determining factor in admissions decisions at these schools, black enrollments at these institutions will drop by at least one half and in many cases by as much as 80 percent.

In the following pages we show what is likely to happen to black admissions, particularly at highly ranked undergraduate colleges, law schools, and medical schools, if admissions decisions at these institutions are largely based on the scores of standardized tests.

☐ The Crippling Effect of Black Student Scores on Standardized Tests for College Admissions

Black SAT and ACT scores are up slightly from last year. But little overall progress has been achieved in the last decade. The performance gap between blacks and whites on the standardized tests used to screen students for college admissions has actually grown since 1988. Furthermore, only a very small number of black students score at the very highest levels of the SAT and ACT scoring distribution — the levels which correspond to the median test scores of students at the nation's most prestigious colleges and universities.

For white people in the United States, none of the following will make any difference in the price of tomatoes. But the latest statistics on standardized test scores for college admissions are vitally important for black Americans because they show very clearly that if the race-neutral admissions policies now in effect in California and Texas are applied nationwide, blacks will be almost totally excluded from admission to the nation's highest-ranked colleges and universities.

Over the past nine years, there has been very little, but some, improvement in SAT scores of African Americans. In 1988 the combined average score for blacks on both the math and verbal sections of the SAT was 847. In 1997 the average black scores had risen only 10 points, to 857.

Furthermore, over the same period, *the gap between black and white scores has actually increased.* In 1988 the average combined score for whites of 1036 was 189 points higher than the average score for blacks. In 1997 the gap between the average white score and the average black score had grown to 195 points.

Almost No Blacks Among the Top SAT Scorers

A major cause for concern is the very small percentage of black students scoring at the top of the College Board's SAT scale. Under the new "easy" recentered scoring system instituted by the College Board a year ago, the mean SAT scores of students admitted to the nation's most prestigious universities and liberal arts colleges have risen substantially. For example, the median SAT score for freshmen at Yale in 1995 under the old SAT scoring system was 1375. For the 1997 entering class using the new recentered scores, the midrange score increased to *1485*. At CalTech, the midrange SAT scores jumped from 1415 to *1505*. Therefore, under the new SAT scoring system, students hoping to qualify for consideration for admission to any of the nation's highest-ranked universities and liberal arts colleges need to

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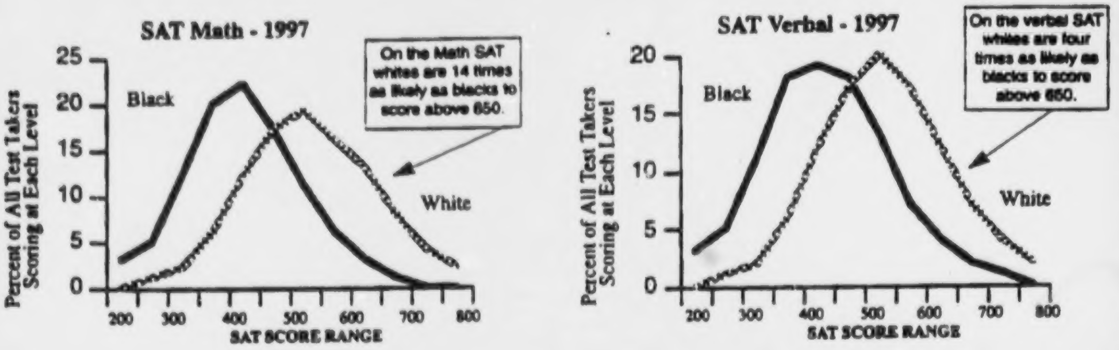
At a Time When African Americans Are Struggling to Overcome 200 Years of Either White Supremacy or Educational Segregation and Subordination, the Standardized Tests for College Admissions Have Become the Official Yardstick for Measuring Academic Failure

Under race-blind admissions procedures in which standardized test scores are a primary factor in admissions decisions, black students will be almost totally shut out of the nation's highest-ranking colleges and universities.

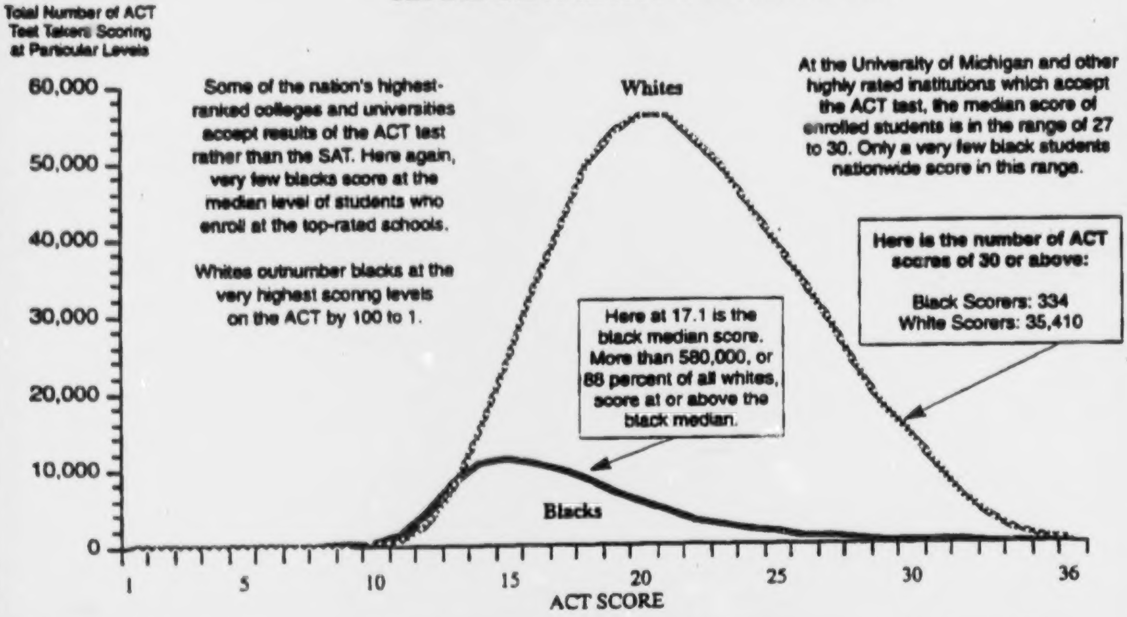
At All of the Nation's Highest-Ranked Colleges and Universities, the Median Combined SAT Score Is 1300 or Above. Therefore, in a Race-Blind Admissions Environment Students Will Need a Minimum Score of 650 on Each Section of the SAT in Order to Be Considered for Admission. However, Blacks Are Far Less Likely Than Whites to Score 650 or Above on the SAT.



On the Math SAT whites are 14 times as likely as blacks to score above 650.

On the verbal SAT whites are four times as likely as blacks to score above 650.

The Bell Curve on ACT Test Scores in 1997



Some of the nation's highest-ranked colleges and universities accept results of the ACT test rather than the SAT. Here again, very few blacks score at the median level of students who enroll at the top-rated schools.

Whites outnumber blacks at the very highest scoring levels on the ACT by 100 to 1.

At the University of Michigan and other highly rated institutions which accept the ACT test, the median score of enrolled students is in the range of 27 to 30. Only a very few black students nationwide score in this range.

Here is the number of ACT scores of 30 or above:

Black Scorers: 334
White Scorers: 35,410

Here at 17.1 is the black median score. More than 580,000, or 88 percent of all whites, score at or above the black median.

Note: The American College Testing Program's ACT test is the preferred standardized test of most colleges and universities in the Midwest, the noncoastal southern states, and the Rocky Mountain region.

Sources: The College Board and the American College Testing Program

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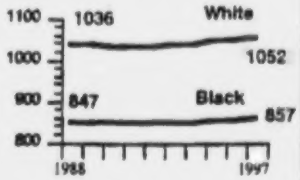
Over the Past 10 Years There Has Been Little Improvement in the SAT Scores of Blacks or Whites



Source: The College Board.

score at least 700 on each portion of the SAT. For admission to the very highest ranked schools, applicants realistically need scores of 750 to be considered for admission. However, for black students seeking admission to these schools, the average SAT scores are considerably lower. But because racially preferential admissions policies for blacks may be subject to termination at additional public universities as well as at private universities receiving federal government benefits, it is important to estimate how black students would fare in a race-blind environment in which all admissions decisions were made solely on academic merit as measured primarily by SAT scores.

In 1997, 110,000 African Americans took the SAT test. But only 141 African-American college-bound students scored above 750 on the math SAT and 250 scored above 750 on the verbal SAT. Nationally, more than 19,000 students of all races scored above 750 on the math SAT and nearly 19,000 students scored above 750 on the verbal SAT. Thus, in this top-scoring category of all SAT test takers, blacks make up only 0.7 percent of the students scoring above 750 on the math test and only 1.4 percent of the students scoring above 750 on the verbal SAT.

If we lower the top-scoring threshold to students scoring above 700 on both the math and verbal SAT, we find that 659 blacks scored above 700 on the math SAT and 900 black students scored above 700 on the verbal portion of the test. Nationwide 62,517 students scored above 700 on the math test and 52,835 scored above 700 on the verbal SAT. Thus, black students make up 1 percent of the test takers who scored above 700 on the math test and 1.7 percent of all test takers who scored above 700 on the verbal section. Overall, blacks made up 10 percent of the more than 1.1 million students who took the SAT.

In competition for the approximately 50,000 places for first-year students at the nation's highest-ranked universities, high-scoring blacks will be swamped by a huge mountain of high-scoring nonblack students. For example, there are nearly 100 times more nonblack students who score above 700 on the math SAT than there are black students who attain such scores.

Black Scores on the ACT Test

While the SAT is preferred by a vast majority of the colleges and universities ranked among the nation's most elite institutions, not all students looking to go to college take the SAT. Many students in the Midwest, the Deep South, and the Rocky Mountain states take the American College Testing Program's ACT test. In 1997 the median score for whites on the ACT was 21.7. For blacks the median score was 17.1. (The ACT test is scored on a scale of 0 to 36.) Both blacks and whites improved 0.1 point from 1996.

When we look only at the group of top scorers on the ACT, we see a very similar relationship between blacks and whites to the one we reported for the SAT test. More than 76,000 white students scored 28 or above on the ACT, making up 12 percent of all white students who took the test. Only 1,045 black students scored 28 or above on the ACT, making up 1 percent of the approximately 90,000 black students who took the test in 1997.

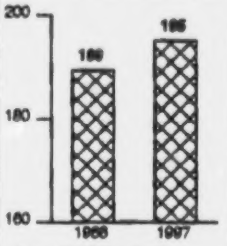
If we raise the threshold to a score of 30 — a level comparable to the median ACT score of students accepted at the nation's highest-ranked colleges and universities — we find that 35,410 whites had scores of 30 or above compared to only 334 black students. Thus, black students make up less than 1 percent of the very top scorers on the ACT. In 1997, 49 white students scored a perfect score of 36 on the ACT test. No black student in the entire United States scored a 36 on the ACT test.

The Handwriting on the Wall

As stated earlier, there are approximately 50,000 places in the first-year classes at the nation's 25 highest-ranked universities. About 3,000 students at these schools, or 6 percent, are black. But if these schools operated under a strict race-neutral admissions policy where SAT or ACT scores were the most im-

Since 1988, the Racial SAT Scoring Gap Between Blacks and Whites Has Increased

Point Differential Between Mean Score of Whites and Mean Score of Blacks



Source: The College Board.

portant qualification yardstick, these universities could fill their freshman classes exclusively with students who score 700 or higher on either section of the SAT or 30 or higher on the ACT test. As stated above, black students make up between 1 and 2 percent of these high-scoring groups. The dreaded conclusion is that in a strictly race-blind admissions environment the percentage of black students at the nation's highest-ranked colleges and universities could drop from the present average of about 6 percent to 2 percent or less.

❑ Why Blacks Will Be Shut Out of Major Law Schools If There Are Further Extensions of Current Bans on Affirmative Action

The Law School Admission Test (LSAT) has become the most important force in controlling law school admissions nationwide. Its power to screen out applicants will become even greater if the Supreme Court or the Congress confirms or extends the Hopwood *decision and rules that all state-funded or state-aided institutions of higher learning must use race-neutral admissions policies.*

But for a few exceptions race-blind admissions would be tantamount to the exclusion of black students from entering any of the leading law schools in the nation. This follows from the fact that under present conditions the median LSAT score for all black test takers nationwide is lower than the median LSAT score at every predominantly white law school in the United States. The median LSAT score of black test takers is even lower than the median score of entering students at law schools ranking in the fourth tier of academic quality.

Let's say you have a very smart daughter. You want her to go to law school. Does she argue well? Can she make a good case for either side of an issue? Does she exude confidence as well as empathy in dealing with others? Is she cool and reasoned under stress? All of these personal qualities produce a strong candidate for law school and the legal profession.

Do you think the Law School Admission Test (LSAT) measures these qualities? Clearly no. But in the United States the Law School Admission Council, which since a 1979 break with the Educational Testing Service, has administered the LSAT and controls the screening test that virtually decides who gets into highly ranked law schools. Unlike the Scholastic Assessment Test for the admission to college, there is no competing test for law school admissions that might produce different or possibly fairer results.

Young White Law Students Said to Be Harmed by Going to School With Blacks

Professor Lino A. Graglia, the son of Italian immigrants and a longtime opponent of affirmative action, has taught at the University of Texas law school since 1966. In early September, law school students at the university announced the formation of a campus group supporting the ban on racial preferences in admissions. On that occasion Professor Graglia addressed the press:

> "When we are talking about affirmative action, we are talking about identifying people by race and applying lower standards to them. The only reason you lower standards for minority students is because they could not get in otherwise. . . . Unlike Asian students, blacks and Mexican Americans are not academically competitive with whites . . . and have a culture that seems not to encourage achievement. Failure is not looked upon in disgrace."

When a reporter for the *Austin-American Statesman* asked Professor Graglia to elaborate on his comments, the professor said,

> "I don't know that it's good for whites to be with the lower classes. I'm afraid it may actually have deleterious effects on their views because they will see people from situations of economic deprivation usually behave less attractively."

The National Law Journal[*] reports that this is not the first time Professor Graglia has committed a major racial gaffe. It appears that in 1986 he was under consideration by the Reagan administration for a seat on the Fifth U.S. Circuit Court of Appeals. But the administration dropped the appointment after the professor urged Austin residents to frustrate a court-ordered busing desegregation plan. At the time, Graglia said that he doubted "the net contribution of the Constitution to our national well-being had been positive."

[*] *The National Law Journal*, September 29, 1997, p. A16.

Why does the LSAT have such enormous power over deciding who gets into a good law school and who does not? Each year 75,000 college graduates apply to law school. At an academically rigorous law school there are always several thousand applicants whose applications have to be graded and evaluated by a staff at each school which includes only a few people. Because it is very difficult to accumulate the necessary knowledge to compare the abilities of, say, an A student at Cornell with an A student at Ohio State, grade point averages are not particularly helpful in making the acceptance decision for a particular student. As a result, the law schools turn to the standardized LSAT. Scores on the test have become the most important determining factor in deciding who is and who

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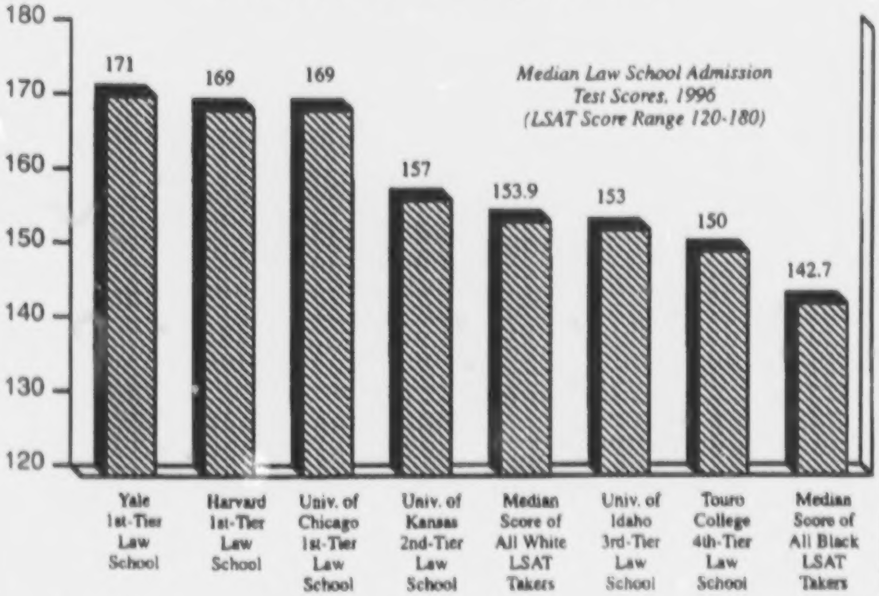
In an Admissions Environment Where LSAT Scores Are Controlling, Black Students Will Be Almost Totally Shut Out of the Most Prestigious Schools



Note: The nation's law schools are divided into four tiers in the annual academic rankings published by *U.S. News & World Report*. There are approximately 40 law schools in each quartile.

Source of test score data: Law School Admission Council and admissions offices of law schools cited.

is not to be admitted. Often the number of applicants is so great that the school has a cutoff rule holding that no student with a score below a certain number will even be considered for admission.

> *"Only 17 of the 8,653 black LSAT test takers scored 170 or above."*

There is another reason why the highly rated law schools use LSAT scores as the principal yardstick in deciding student admissions. This is because *U.S. News & World Report* and other similar evaluators of the relative quality of law schools use the median LSAT score of entering students as a critical measure of the academic strength of the school. Obviously, the law schools are driven to keep their LSAT scores very high. To maintain or boost the reputation of the school, admissions officers almost inevitably seek out high LSAT scorers as their best candidates for acceptance.

Now how do these admissions procedures affect black students?

In 1996 the median score on the LSAT for black test takers was 142.7. (LSAT scores are on a scale of 120 to 180.) The median white score was 153.9. At Yale Law School, the nation's highest-ranked institution, the median LSAT score is in the stratosphere at 171. Yale admits only 6.6 percent of all its law school applicants. At second-tier law schools (those ranking 51 to 89 in the national rankings) median LSAT scores range from 153 to 161. At third-tier law schools median LSAT scores range from 150 to 157. At fourth-tier institutions median LSAT scores range from 144 to 154.

Now for the most important point, a force that will surely resegregate blacks in lower-ranked law schools. This is that at every one of the 174 law schools in the *U.S. News* rankings (including all the fourth-tier law schools) the median LSAT score is higher than the median score for all black test takers in the United States.

One can already guess that only a few handfuls of blacks

Scores on Standardized Tests as Predictors of Success in Life

In 1951 Dr. Martin Luther King Jr. took the Graduate Record Exam (GRE) for his admission to the Ph.D. program at Boston University. His verbal aptitude score was in the second lowest quartile. His quantitative score was in the lowest 10 percent of all students who took the test. Dr. King also scored in the lowest quartile of all test takers in the fields of physics, chemistry, biology, social studies, and the fine arts.

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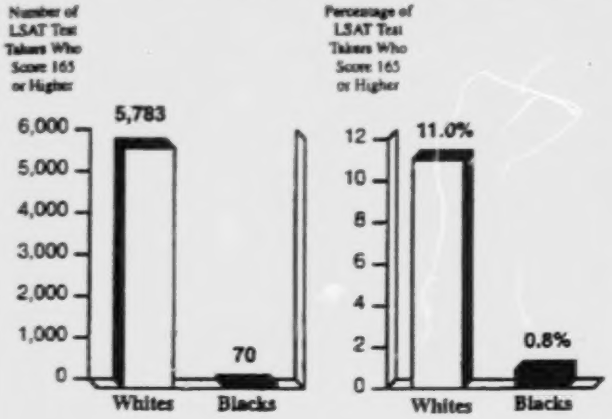
In a Race-Blind Admissions System, Only a Few Dozen Blacks Each Year Have Law School Admission Test Scores That Would Qualify Them for Admission to Any of the First-Tier Law Schools

Number and Percentage of Black and White Test Takers Who Score 165 or Above on the Law School Admission Test, 1995-96



Note: The Law School Admission Test is scored on a scale of 120 to 180. At the highest-rated law schools the median LSAT score is 170. At the nation's 34 highest-ranked law schools the median LSAT score is 160 or above.

Source: Law School Admission Council.

score at the highest range of LSAT scores ensuring consideration at the nation's highest-ranked law schools. Here are the discouraging figures from the Law School Admission Council. In the 1995-96 academic year there were more than 8,600 black LSAT test takers. But only 17 black students scored 170 or above (less than two tenths of 1 percent of all black LSAT test takers). Blacks made up only 0.7 percent of the students who scored above 170 on the LSAT. Yet this 170 figure is the median scoring level at Yale and Harvard, the nation's two highest-ranking law schools. In contrast, nearly 1,700 white students — and 2,300 students overall if we include Asians, Hispanics, and other minorities — scored 170 or above on the LSAT.

Almost surely we may conclude that in a strictly race-neutral admissions environment blacks would make up less than 1 percent of the first-year classes at the nation's most prestigious law schools. As there are approximately 500 places in the first-year class at the Harvard law school, even under the most favorable circumstances in which *all* the nation's very highest scoring black students were admitted to and enrolled at Harvard, they would still make up only about 3 percent of the first-year students at Harvard.

Now suppose we drop the LSAT scoring threshold to 165 — equivalent to the median LSAT score of students at the nation's 15 highest-ranked law schools; things do not look much better. In 1995-96 only 70 blacks nationwide scored 165 or above on the LSAT. This was only eight tenths of 1 percent of all black LSAT test takers. But nationwide 7,227 students — including 5,783 white students — scored 165 or above on the LSAT. More than 11 percent of all white LSAT test takers scored above 165. Blacks make up less than 1 percent of all LSAT test takers who scored 165 or above. If all 70 blacks who scored above 165 enrolled in the first-year classes at the nation's 15 highest-ranked law schools, they would make up about 1.5 percent of the first-year students at these 15 law schools.

Now let's see what happens if we drop the LSAT scoring level even further to 160. At all of the nation's 34 highest-ranked law schools the median LSAT score is 160 or above. At this level we find that 267 black students score at or above 160. These students make up only 3 percent of all black LSAT test takers. Nationwide there are 16,278 students — including 13,305 white students — who scored 160 or above on the LSAT. Thus, blacks make up only 1.6 percent of all students who score 160 or above on the LSAT. Thus, in a strict race-neutral admissions environment, we could expect that black students would make up less than 2 percent of all students at the nation's top-tier law schools.

> *"At every one of the fourth-tier law schools in the* U.S. News *rankings, the median LSAT score of the students is higher than the median score of all black test takers in the United States."*

At the 34 highest-ranked law schools where the median LSAT score is 160 or above, there are more than 9,100 places for first-year students. Even under the most favorable conditions in which *all* 267 high-scoring black students were admitted and enrolled at these 34 top-ranked law schools, they would still make up only 3 percent of all first-year students at these schools.

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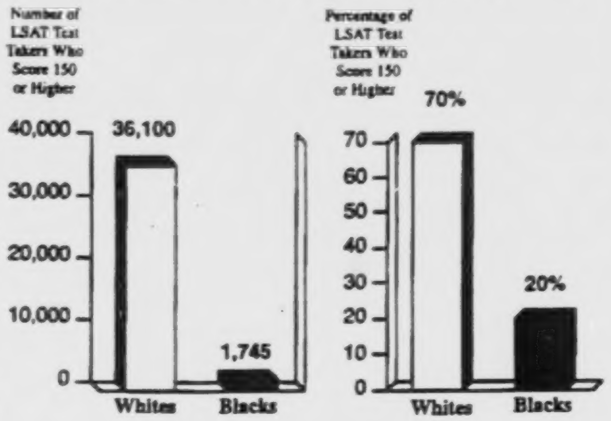
In a Race-Blind Admissions System, Blacks Will Be At a Distinct Disadvantage in Competing for Admissions to Even the Lowest-Ranked Third- and Fourth-Tier Law Schools

Number and Percentage of Black and White Test Takers Who Score 150 or Above on the Law School Admission Test, 1995-96



Note: The Law School Admission Test is scored on a scale of 120 to 180. At the nation's third- and fourth-tier law schools the median LSAT score is in the range of 150.

Source: Law School Admission Council.

Even if the highest-ranked law schools decided to use non-race-based affirmative action, the number of qualified whites would overwhelm the number of qualified blacks for the simple reason that whites who score above 160 on the LSAT outnumber blacks who score at that level by 50 to 1. As a result, there would always be huge numbers of white students who meet the academic admission standards of the top schools. Only a few dozen black students would meet the same criteria.

Even at the lowest-tier law schools, blacks would be at a distinct disadvantage in the admissions process. For instance, at third- and fourth-tier law schools, the median LSAT score is in the range of 150. But in the 1995-96 period, only 1,745 black students scored 150 or above on the LSAT. They made up only 20 percent of all black LSAT test takers. In contrast, more than 36,000 white LSAT test takers scored 150 or above, making up 70 percent of all white LSAT test takers. Thus, in the group of LSAT test takers who score 150 or above — the median score for students at most of the third- and even fourth-tier law schools — whites outnumber blacks by more than 20 to 1.

Unlike colleges, law schools do not as often consider nonacademic qualifications and character traits in making admissions decisions. But even when they do, once more whites will necessarily offer far more candidates with these traits for the simple reason that white law school applicants outnumber black law school applicants by 7 to 1. Poverty origins of a candidate do not help blacks because there are three times as many poor whites in this country than poor blacks. For these reasons blacks will not win significant entry to law schools unless race is one qualification that is considered for admission.

Further Evidence of the Probable Exclusion of Black Students in a Race-Neutral Admissions Process at the Nation's Law Schools

For strong empirical evidence of what is likely to happen, look at the law school admission data for first-year law school classes at the University of California and the University of Texas* where race-based admissions policies have been outlawed. The admissions figures confirm that few blacks will meet the admissions criteria in a race-neutral system. At the University of California's Boalt Hall law school only 14 black students were admitted this year compared with 75 blacks admitted in 1996. None of the 14 admitted black students decided to enroll. One black student, admitted to the Boalt Hall law school in 1996 when affirmative action was in effect, deferred enrollment until this fall. He is the only black student in this year's 270-member first-year class.

> *"In the group of LSAT test takers who score 150 or above — the median score for students at most third- or fourth-tier law schools — whites outnumber blacks by more than 20 to 1."*

At the University of Texas law school, black applicants dropped this year from 361 in 1996 to 225 in 1997. Only 11 black students were accepted this year compared with 65 in 1996 when an affirmative action admissions program was in effect. This fall only four blacks enrolled in the 468-member first-year class at the

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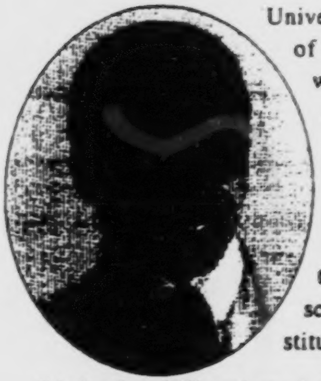
*For more information, see "Black Law School Enrollments: A Virtual Exclusion in California and Texas," JBHE, Number 16, Summer 1997, p. 8



Eric Brooks, a 1992 graduate of Indiana University, is the only black student in this year's entering class at the University of California at Berkeley's Boalt Hall law school.

University of Texas School of Law. In 1996 there were 31 black first-year students.

If the *Hopwood* Court of Appeals decision outlawing affirmative action is held to apply to major private law schools whose parent institutions receive government aid and contracts, prospective black law school students most likely will be reconcentrated at the nation's four black law schools, the schools where blacks were largely confined during the Jim Crow years.*

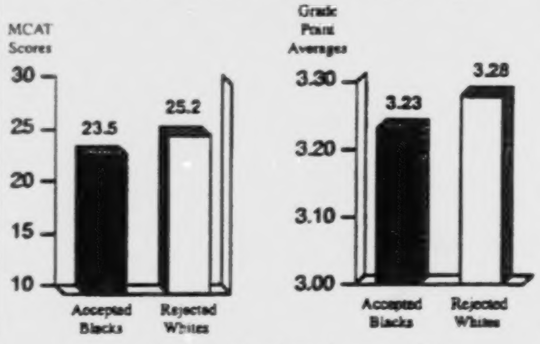
❑ White Coats, White Faces: Calculating the Impact on Black Admissions to Medical School If Affirmative Action Were Eliminated

Blacks continue to make progress in overall admissions to medical colleges. But JBHE calculations show that if racial admissions preferences are phased out almost no blacks will qualify for admission to the nation's major medical schools.

In 1996, for the first time in American history, more than 1,000 blacks graduated from U.S. medical schools. As the nation continues to struggle with the issue of affirmative action for admissions to higher education, it behooves policymakers to consider what would happen to the number of blacks enrolled in medical schools — particularly prestigious medical schools — if affirmative action admissions programs are eliminated nationwide.

There are 126 accredited medical schools in the United States. In 1996 there were 46,968 applicants to these medical schools. A decade ago there were fewer than 27,000 applicants. The aggregate number of places in the first-year classes at U.S. medical schools have remained constant at slightly over 16,000. For this and other reasons the competition for medical school admission has become fierce. The overall acceptance rate of all students who apply to medical school has dropped from a high of 64 percent in 1989 to 37 percent in 1996.

If Affirmative Action in Medical School Admissions Is Abandoned Nationwide, Blacks' Lower MCAT Test Scores and Grade Point Averages Will Put Them at a Severe Disadvantage



Medical School Applicants, 1996

Note: The differences in grade point averages may be even greater than the statistics suggest. This is due to the fact that medical schools typically, and often unjustly, regard a 3.3 GPA from a black college as inferior to a 3.0 GPA from a predominantly white school. There are many black colleges that are academically rated higher than large numbers of predominantly white colleges.

Source: Association of American Medical Colleges

Despite the intense competition, blacks have continued to make substantial progress in medical school education. In 1989 there were 2,160 black applicants to medical school. By 1996 black applicants had risen 69 percent to 3,645. Although the acceptance rate for black students dropped from 49.9 percent to 35.8 percent during the period, the total number of blacks entering medical school increased from 997 in 1989 to 1,197 in 1996. The percentage of all first-year medical school entrants who were black increased from 6.2 percent to 7.4 percent from 1989 to 1996.

> *"The median combined MCAT score of 25.2 for white students who were rejected for admission to medical schools nationwide was significantly higher than the median score of black students who were admitted."*

Though black progress in medical school education remains steady, there is compelling evidence to show that affirmative action admissions programs have played a

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*See "Comparing the Nation's Four Predominantly Black Law Schools," JBHE, Number 16, Summer 1997, p. 11.

Medical Schools With the Most Black Graduates, 1996

Howard University	77
Meharry Med. College	65
University of Illinois	32
Morehouse Med. College	30
University of California (3 campuses)	26
University of Michigan	25

[illegible]

[illegible]

major role in this progress. The median undergraduate grade point average of all black students admitted to medical school in 1996 was 3.23. The median grade point average of white students accepted to medical school was 3.58. The median GPA of black students accepted to medical schools in premed science courses was 3.09. For whites the median GPA in premed courses was 3.58. *In fact, in 1996 the median GPA of white students who were rejected for admission to medical school — 3.28 — was higher than the median GPA of black students who were admitted.*

"In 1997 there were 196 black applicants to the medical school at the University of California at San Diego. None was admitted."

Blacks who were in fact accepted to medical school had on average far lower scores on the Medical College Admission Test (MCAT). In 1996 the median MCAT score of black students admitted to medical school was 23.5 compared to a median score of 30.2 for whites. (The MCAT scoring scale runs from 0 to 45.)

The huge racial disparity in academic qualifications is reinforced by the fact that the median combined MCAT score of 25.2 for white students who were *rejected* for admission to medical school was significantly higher than the median score of black students who were admitted. Presumably, in a race-neutral admissions environment where GPAs and MCAT scores were paramount, black students would not be doing as well in medical school admissions as they are today.

We now have some hard evidence that blacks will fare badly in medical school admissions if racial preferences are eliminated. This appears in the results of the current 1997 admissions results at the University of California's five medical schools. This year, for the first time, the California medical schools were operating under the 1995 edict of the university's board of regents which states that racial preferences could no longer be used in the admissions process. It is clear that the regents' decision had a chilling effect on the number of black students who sought admission to the medical schools. Applications were down by a huge 14.3 percent, from 1,213 to 1,039.

"In a strict race-neutral admissions environment, it appears that black enrollments at the nation's highest-ranked medical schools would drop by at least 75 percent."

In 1997, under a race-neutral admissions process, 51 black students were admitted to the five California medical schools, down from 62 a year earlier. The number of black students admitted was down at four of the five California medical schools. Most striking was the fact that of the 196 black applicants to the medical school at the University of California at San Diego, none was admitted. Only 2 of the 171 black medical school applicants at the Irvine campus were admitted. In contrast, nearly 10 percent of the black applicants to the highly prestigious medical school at the University of California at San Francisco were admitted, nearly twice the rate for applicants as a whole. Undoubtedly, Ward Connerly, the black regent of the University of California who led the fight to enact Proposition 209 which bans all racial preferences in university admissions, will examine the institution's records to see if any residual racial preferences remain at the highly prestigious San Francisco medical school.

"If we are permitted to assume that the number of black students scoring on the MCAT test at the median of the elite medical schools is about the same as the percentage of black students scoring on the Law School Admission Test at the median of the top law schools, we may conclude that only about seven black students would meet the entrance requirements at the 10 highest-ranking medical schools."

At the University of Texas, where racial preferences for university admissions were abandoned because of the decision in the *Hopwood* case, black medical school admissions also suffered severely. Because of its huge number of applicants, the University of Texas Southwestern Medical School usually does not even interview

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an applicant for admission unless the candidate received an MCAT score of 28 or above. (Recall that the nationwide median MCAT score of blacks who were admitted to medical school was 23.5.) In past years, admissions officials would lower this minimum threshold to 24 for minority candidates. But this year, under a strict race-neutral policy, only 4 black candidates were interviewed for admission at the University of Texas Southwestern Medical School. In 1996 the medical school interviewed 40 black applicants. The number of black students admitted this year dropped by more than one half.

> *"In 1997, under a strict, new race-neutral admissions policy at the University of Texas Southwestern Medical School, the number of black students admitted dropped by one half."*

It is useful to make a rough calculation as to what would happen if race-neutral admissions policies were instituted at all of the nation's leading medical schools. There are approximately 1,500 places for first-year students at the nation's 10 highest-ranked medical schools.* The median MCAT score at these schools is more than 33. Less than 7 percent of all students who apply to these top 10 schools are accepted. The Association of American Medical Colleges was not able to provide us with the number of black students who scored 33 or above on the MCAT test. But if we are permitted to assume that the number of black students scoring on the MCAT test at the median of the elite medical schools is about the same percentage as the black students scoring on the Law School Admissions Test at the median of the top law schools, we would conclude that only about seven black students would meet the entrance requirements at the 10 highest-ranking medical schools. This is less than one black student per medical school. In contrast, we know that in 1996 there were 37 black first-year students combined at three of the highest-ranked medical schools — Harvard, Yale, and Johns Hopkins. Blacks made up more than 10 percent of the first-year classes at both Harvard and Yale.

In a strict race-neutral admissions environment, it appears that black enrollments at the nation's highest-ranked medical schools would drop by at least 75 percent.

The Black Medical Schools Will Not Be Able to Pick Up the Slack

In 1996 slightly more than 16 percent of all black medical school graduates earned their degrees at the three predominantly black medical schools — Howard, Meharry, and Morehouse. While these three pillars of black higher education will ensure that a significant number of black doctors will continue to progress through the academic pipeline, these schools cannot expect to compensate for the anticipated shortfall in medical school enrollments by African Americans at the large integrated schools that would come about if affirmative action admissions programs are eliminated nationwide.

The Portending Health Crisis in Inner-City Health Care

If race-neutral admissions policies are adopted nationwide, conditions are almost certain to lead to a serious health crisis in the nation's inner cities. For example, research by faculty members at the University of California at San Francisco, published in *The New England Journal of Medicine*, presents a disturbing picture of what may happen to public health in California if the state no longer educates significant numbers of black doctors. The study determined that:

- Communities with large black populations were four times as likely to have doctor shortages than were other communities in the state.
- Black doctors practiced in communities in which blacks made up on average 32 percent of the population. White doctors practiced in communities in which blacks were on average 5 percent of the population.
- Black doctors practiced in communities in which on average nearly half of the population lived in poverty.
- Black doctors in the state had cared for six times as many black patients as had nonblack doctors.
- More than one half of all patients seen by black doctors are African Americans.
- On average, 45 percent of all patients seen by black doctors were Medicaid patients compared with 18 percent of the patients seen by nonblack doctors.

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*The 10 highest-ranked medical schools in the United States as rated by *U.S. News & World Report* are in rank order: Harvard, Johns Hopkins, Duke, University of California at San Francisco, Washington University, Yale, University of Pennsylvania, Columbia, University of Michigan, and Stanford.

The Optional SAT Policy at Bates:
A Final Report

February 13, 1990

Submitted by the Committee on
Admissions and Financial Aid:

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Acknowledgement. The committee would like to express its appreciation to David Das for providing invaluable assistance in compiling, cross checking, and analyzing the data in this report.

Abstract

Six years ago, the faculty voted to adopt a new policy regarding the submission of standardized test scores by applicants to Bates College. Under the old policy, three achievement test scores and two SAT scores (math and verbal) were required of all applicants. Under the new policy, the submission of SAT scores is optional. There was some concern that this policy might increase the number of "marginally" qualified students admitted to Bates, and perhaps even decrease the number of exceptional students. To investigate this matter, we conducted detailed analyses of the academic performance of the last six entering classes. The results indicate that the standardized test scores of these classes *increased* significantly from 1984 to 1989. Furthermore, while the test scores of students choosing not to submit SAT's are signficantly lower than those of submitting students, there is only a minimal difference in the cumulative GPA of these two groups (2.84 vs 2.89). This implies that nonsubmitting students perform better than predicted on the basis of their SAT scores, a finding verified by multiple linear regression analysis. It is concluded that the optional SAT policy has had no negative, and quite possibly a positive, impact on the quality of students admitted to Bates.

The Optional SAT Policy at Bates: A Final Report

As part of the original 1984 legislation making the submission of SAT scores optional at Bates, the Committee on Admissions and Financial Aid was charged with issuing a report after five years under the new policy. A preliminary study[1] conducted by the committee found that the first class admitted under the new policy, entering in 1985, had academic credentials which were just as good as the class entering in 1984. The present report reviews in depth the academic performance of all classes entering Bates from 1984 to 1989. Since many readers may not have the time or inclination to study this report in detail, we *briefly* summarize the major findings below. Subsequent sections of the report present and discuss the results in greater detail.

The committee looked at the performance of the 1984-1989 entering classes on a variety of different measures: verbal SAT (VSAT), math SAT (MSAT), total SAT (TSAT), achievement tests (ACH), and cumulative grade point average (GPA). Transfer and foreign students were excluded from the database because the admissions criteria for such students differ in important respects from those of entering freshmen: e.g., transfer students submit an academic record from another institution, foreign students do not usually take the SAT's, etc. In cases where a student had taken an SAT or ACH test more than once, the highest score was selected for inclusion in the study. Furthermore, the achievement test measure was obtained by averaging the three highest achievement test scores submitted by the student. Since most students take only three achievement tests, and since every student *must* submit an achievement test score in English, the ACH measure is usually based on averaging one English with two other scores which vary from student to student (biology, math, chemistry, physics, etc). Finally, cumulative GPA is based on the number of semesters that the student has been enrolled at Bates: for example, the GPA's of students entering in 1985 are based on eight semesters, whereas those of students entering in 1989 are based on only one semester.

The present report attempts to answer several different but related questions. First, have the classes admitted under the optional SAT policy declined in academic quality over the five year period from 1985 to 1989? Second, how well can the SAT and achievement test measures predict students' performance (GPA) at Bates? Third, do students who choose to submit their SAT scores for admission (submitters) differ in academic performance from those who do not (nonsubmitters)? The following provides a very brief synopsis of the major findings, along with our main conclusions.

Trends in academic performance. There is no evidence of a decline in academic performance of the classes admitted under the new SAT policy. In fact, from 1985 to 1989 there has been a consistent and significant *increase* in scores on the VSAT, MSAT, TSAT, and ACH. While these trends have not been matched by a corresponding increase in GPA, this is largely due to an artifact: the earlier classes have GPA's which include the higher grades from the junior and senior years, whereas the more recent classes do not. A comparison of the first-semester GPA of the 1985 and 1989 entering classes was indeed significant (2.71 vs 2.84). Once four years of GPA data are available for all five classes, we would expect to see a significant increase in GPA from 1985 to 1989.

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[1] *The Optional SAT Policy at Bates: A Preliminary Report*, April 22, 1986, by the Committee on Admissions and Financial Aid.

Predicting GPA. None of the standardized tests predict GPA very well: VSAT and MSAT together account for 9.6% of the variation in grades, ACH by itself accounts for 12.2% of the variation, and all three predictors together account for only 13.6% of the total variation. This poor performance is probably due to two factors: (1) the highly select student population admitted to Bates results in a "truncated" range effect, and (2) the optional SAT policy may cause students who test poorly on the SAT (but are otherwise academically qualified) to apply to Bates in greater numbers than before. Since the SAT's do not predict GPA for this particular subgroup, there would necessarily be a reduction in overall predictability as well. Of the three standardized tests, ACH was most highly correlated with GPA ($r = .349$), followed by VSAT ($r = .297$) and MSAT ($r = .177$).

Nonsubmitters vs submitters. Nonsubmitters have significantly lower scores than submitters on VSAT, MSAT, TSAT, and ACH. This is true for both the year by year comparisons, and for the comparisons collapsed across 1985-1989. In contrast, there are *no* significant differences in GPA between submitters and nonsubmitters for any of the year by year comparisons. For the comparison collapsed across 1985-1989, the submitter-nonsubmitter difference in GPA (2.89 vs 2.84) achieves borderline significance. However, the magnitude of this difference, $r_{pb} = .045$, is quite small in relation to that observed for the standardized tests (e.g., $r_{pb} = .538$ for TSAT). Hence, while nonsubmitters do substantially worse on all the standardized tests than submitters, their actual academic performance at Bates is very nearly the same. A series of regression analyses showed that nonsubmitters have significantly higher GPA's than would be predicted on the basis of their verbal and math SAT scores. Finally, we found nonsubmitters are in no greater danger of being dismissed or placed on academic probation than submitters.

Major conclusions. The various analyses summarized above suggest that the optional SAT policy has worked out more or less as anticipated. The committee would not recommend returning to the old policy of requiring both SAT and ACH scores. In fact, since the standardized tests do not predict students' performance very well, and since the tests largely overlap in what they *do* predict, it appears that SAT and achievement tests can be used more or less interchangeably as far as Admissions is concerned. Each accounts for roughly 10-12% of the variation in GPA, and both together only raise this figure to 13%. From the point of view of prediction, it would seem immaterial which of the two standardized tests (SAT, ACH) the student submits to Bates. Furthermore, allowing the student to submit either the SAT or ACH would vastly increase the potential applicant pool from which the Admissions Office can draw. The committee is currently considering legislation which would increase the options students have for submitting standardized test scores to Bates.

In what follows, we present the analyses summarized above in greater detail, along with additional supporting information. Three major sections of this report review (1) the academic performance of recently admitted classes, (2) the degree to which GPA can be predicted by standardized test scores, and (3) the differences in academic performance between students who submit SAT scores for application and those who do not.

Academic Performance of the Classes Entering 1984-1989

This section reviews the academic qualifications of the classes entering Bates from 1984 to 1989. Keep in mind that the current SAT policy was instituted in 1985, and that prior to that time students were required to submit *both* SAT and achievement test scores. Consequently, the class entering in 1984 provides a baseline for assessing the effects of the new SAT policy on the quality of subsequent entering classes. We had hoped to compile data on classes entering prior to 1984 as well, but learned that the computerized student information system did not maintain complete records for these earlier classes. However, cursory inspection of information reports issued by the Admissions Department suggests that the SAT, ACH, and GPA profiles in 1984 are typical of classes admitted under the old policy.

Trends in the standardized test scores and GPA. Table 1 presents the mean VSAT, MSAT, TSAT, ACH, and GPA for classes entering Bates from 1984 to 1989[2]. With the exception of the GPA variable, there is a fairly steady increase in the means across years. To assess whether these changes are significant, oneway ANOVA's (F-tests) were computed comparing the means. The last column of the table shows the p-level of the F-test computed on each measure[3], and we see that there are significant increases in VSAT, MSAT, TSAT, ACH, and GPA from 1984 to 1989. For the GPA variable, this result is due mainly to the lower GPA in 1984 relative to 1985-1989. To further clarify the trends in Table 1, additional oneway ANOVA's were conducted comparing just the means from 1985 to 1989: i.e., for the classes admitted under the optional SAT policy. These tests revealed significant increases in VSAT, MSAT, TSAT, and ACH over this period, but no significant increase in GPA ($p = .256$). The latter finding is not too surprising, since the mean GPA's from 1985-1989 fall within a fairly small interval (2.84-2.92). However, it *is* surprising that the mean GPA seems to decrease slightly from 1985 to 1989.

Table 1. Mean VSAT, MSAT, TSAT, ACH, and GPA for the 1984-1989 entering classes.

Variable	84	85	86	87	88	89	p-level
VSAT	556	558	559	571	567	571	.005
MSAT	597	596	584	608	609	610	<.001
TSAT	1153	1154	1143	1179	1176	1181	<.001
ACH	552	566	556	576	571	576	<.001
GPA	2.79	2.92	2.86	2.89	2.87	2.84	.006

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[2] The data reported in Table 1 and subsequent tables have been rounded to facilitate interpretation. All statistical analyses reported in the text are, of course, based on the *unrounded* values.

[3] By convention, if $p \leq .05$, then the results are said to be "significant." In the context of Table 1, this implies that the means across years differ more than would occur on the basis of random error. Therefore, the differences are "real" and not due to chance.

While the slightly downward trend in GPA from 1985 to 1989 seems to be inconsistent with the upward trends observed in the standardized test measures, this is not in fact the case. It turns out that entering class year is completely confounded with the number of semesters on which the cumulative GPA is calculated: i.e., 8 for 1985, 7 for 1986, 5 for 1987, 3 for 1988, and 1 for 1989. Since cumulative GPA's rise from the freshman to senior years, this would tend to mask the across-class increases expected on the basis of the standardized test scores. For example, the 1985 entering class had a mean GPA of 2.71 after one semester[4], but a 2.92 GPA at the end of eight semesters (Table 1). This two-tenths of a grade point "advantage" for the 1985 class would swamp the difference expected between 1985 and 1989 on the basis of the standardized test scores. However, if we extrapolate from the 1985 results, we can predict that the 1989 class will have a mean cumulative GPA of about 3.05 (2.84 + .21) after four years, which *is* higher than the mean GPA of the 1985 class (2.92). Of course, extrapolation is always a risky business. A more reasonable comparison pits the first semester GPA of the 1985 class (2.71) against that of the 1989 class (2.84). This difference is indeed significant ($p < .001$), indicating that the class most recently admitted to Bates is doing better at the end of one semester than the class admitted in 1985. In any event, once we have cumulative GPA's based on eight semesters for each and every class, we would expect the cumulative GPA's to rise more or less steadily from 1984 to 1989.

Distribution by interval on the standardized tests. While the means in Table 1 allow us to ascertain the overall trends in the data, they do not communicate information about how the standardized test scores are distributed across the different intervals of the test (500's, 600's, 700's, etc). In order to address this question, Table 2 presents the percentage of students falling in each interval of the VSAT, MSAT, TSAT, and ACH for each year from 1984 to 1989, as well as across years. It is apparent that the percentage of students scoring in the higher intervals of these tests is increasing from 1984 to 1989. On the VSAT, for instance, 25.1% of the students score in the interval 600-699 in 1984, whereas 36.1% do so in 1989. Particularly dramatic gains are made on the ACH, with 22.4% of the students scoring in the 600's in 1984, and 39.8% doing so in 1989. Somewhat less impressive gains are made on the MSAT: 45.4% score in the 600's in 1984, and 47.9% do so in 1989 (the percentages reach into the low 50's in 1987 and 1988). In the next higher interval of the MSAT (the 700's), the percentages increase from 8.7% in 1984 to 12.1% in 1989.

Table 2 shows that the optional SAT policy is not increasing the percentage of low scoring students admitted to Bates, nor is it decreasing the percentage of high scoring students. Both of these effects were envisaged in the worse-case scenario. Indeed, the opposite appears to be the case: for each measure there is a (more or less) consistent increase in higher scoring students from 1984 to 1989, and a corresponding decrease in lower scoring students. X^2 tests revealed that these changes across years are significant for each measure: VSAT ($p = .0014$), MSAT ($p = .0022$), TSAT ($p = .0120$), and especially ACH ($p < .0001$).

Summary. The results presented in Tables 1 and 2 indicate that there has been an increase in the quality of the classes admitted since the institution of the new SAT policy. Whether this improvement should be attributed to the policy or to other factors, such as improved facilities (e.g.,

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[4] The first-semester GPA of the 1985 class is taken from the preliminary report (footnote 1).

Table 2. Percent of students falling in each interval of the VSAT, MSAT, TSAT, and ACH.

	Year	200	300	400	500	600	700
	84	0.0	0.0	17.6	54.3	25.1	2.9
	85	0.3	1.0	21.7	45.2	27.1	4.7
	86	0.0	0.9	17.3	49.7	28.7	3.4
VSAT	87	0.0	1.3	9.9	51.4	33.5	3.9
	88	0.0	1.3	12.1	52.8	30.3	3.4
	89	0.3	0.8	13.4	46.8	36.1	2.6
	84-89	0.1	0.9	15.4	50.1	30.1	3.5

	Year	300	400	500	600	700	800
	84	0.5	8.2	37.2	45.4	8.7	0.0
	85	0.5	8.5	39.8	43.9	7.2	0.0
	86	0.6	11.9	40.6	40.1	6.8	0.0
MSAT	87	1.3	8.1	27.3	53.0	10.4	0.0
	88	0.5	8.2	29.0	50.9	11.3	0.0
	89	0.5	7.1	32.1	47.9	12.1	0.3
	84-89	0.7	8.6	34.3	46.9	9.5	0.0

	Year	600	700	800	900	1000	1100	1200	1300	1400	1500
	84	0.0	0.0	1.9	6.0	21.5	33.8	27.5	8.2	1.0	0.0
	85	0.0	0.3	1.8	5.9	21.7	33.3	25.3	10.6	1.0	0.0
	86	0.3	0.0	3.1	7.7	23.3	31.5	23.0	9.4	1.7	0.0
TSAT	87	0.3	0.3	1.3	6.5	11.7	32.2	33.8	11.9	1.8	0.3
	88	0.0	0.3	1.9	5.0	17.4	27.4	32.2	13.2	2.6	0.0
	89	0.3	0.3	1.8	3.9	15.8	28.9	31.3	15.3	2.1	0.3
	84-89	0.1	0.2	2.0	5.8	18.5	31.3	28.9	11.4	1.7	0.1

	Year	200	300	400	500	600	700
	84	0.0	0.5	15.2	60.9	22.4	1.0
	85	0.0	0.0	11.2	55.3	32.5	1.1
	86	0.0	0.6	13.5	60.9	23.6	1.4
ACH	87	0.3	0.5	5.8	58.6	32.9	1.9
	88	0.0	0.3	9.5	55.0	34.9	0.3
	89	0.0	0.3	8.7	50.7	39.8	0.5
	84-89	0.0	0.4	10.7	57.0	30.9	1.0

the Olin Arts building), national demographic trends, and the like, is difficult to say[5]. However, it is certainly the case that the optional SAT policy instituted in 1985 has had no detectable *negative* impact on the overall quality of entering classes.

Predicting GPA from Standardized Test Scores

In this section, we review data bearing on the relative accuracy with which students' grades (GPA) can be predicted using the standardized tests (VSAT, MSAT, TSAT, and ACH), either individually or in combination. We analyzed the data collapsed across all entering classes, both with and without the 1984 class included. Since the results were very similar, we report here the analyses which *excluded* the 1984 class. Therefore, the results in this section pertain to the students admitted under the new SAT policy.

Table 3. Correlations among the variables.

	GPA	VSAT	MSAT	TSAT
VSAT	.297			
MSAT	.177	.324		
TSAT	.289	.802	.825	
ACH	.349	.578	.554	.695

Correlating the variables. Table 3 presents the correlation matrix summarizing the relationships among the various measures, collapsed across the 1985-1989 entering classes (N = 1883). The first column of the matrix shows the inter-correlations of GPA with each of the standardized test measures. ACH has the highest correlation with GPA, followed by VSAT, TSAT, and MSAT. Squaring the correlations provides an estimate of the amount of variation in GPA which can be explained by each of the measures: ACH, VSAT, and MSAT account for 12.2%, 8.8%, and 3.1% of the variation respectively. All of the correlations in Table 3 are significant at $p < .001$ or better.

Figures 1 and 2 plot the relationship between GPA and students' scores on each of the standardized tests. The scatterplots provide a clear indication of just how much error is involved in attempting to predict GPA from any of the measures. Even the best measure (ACH) shows considerable "scatter" about the regression line (not shown), indicating that for any particular test score there is a wide range of possible GPA's paired with it. For example, students having an ACH of 610 had GPA's which ranged from a low of .6 to a high of 4.0! This situation is even more evident for the SAT measures.

Predicting GPA from the standardized tests. A number of regression analyses were conducted in order to ascertain just how well the standardized tests can predict GPA. Such analyses find the

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[5] Colby College has also seen increases in standardized tests scores over the last six years. This might mean that Bates and Colby are both benefiting from general demographic trends, or that each has separate and different reasons for attracting better classes in recent years. Colby, for example, has added a large and quite impressive new student union building.

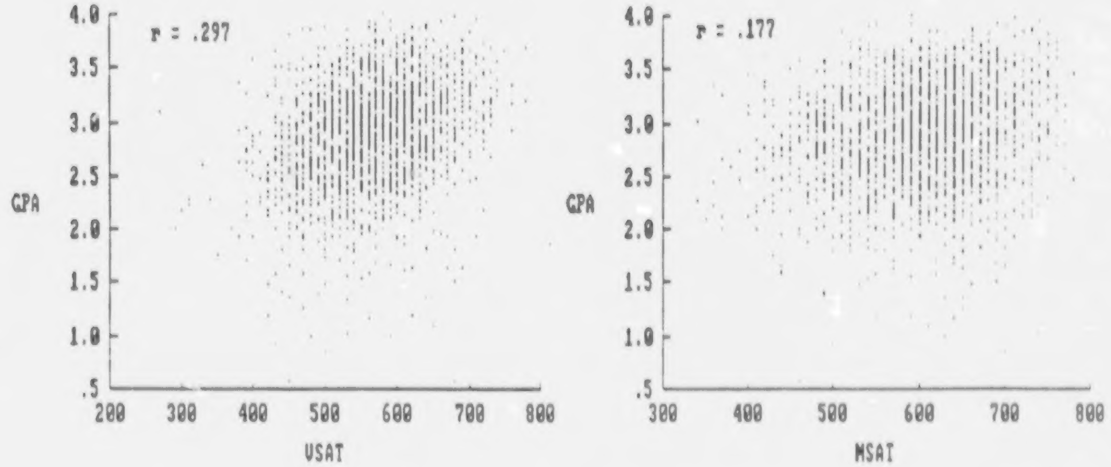

Figure 1. The relationship between cumulative GPA and scores on the VSAT (left) and MSAT (right).

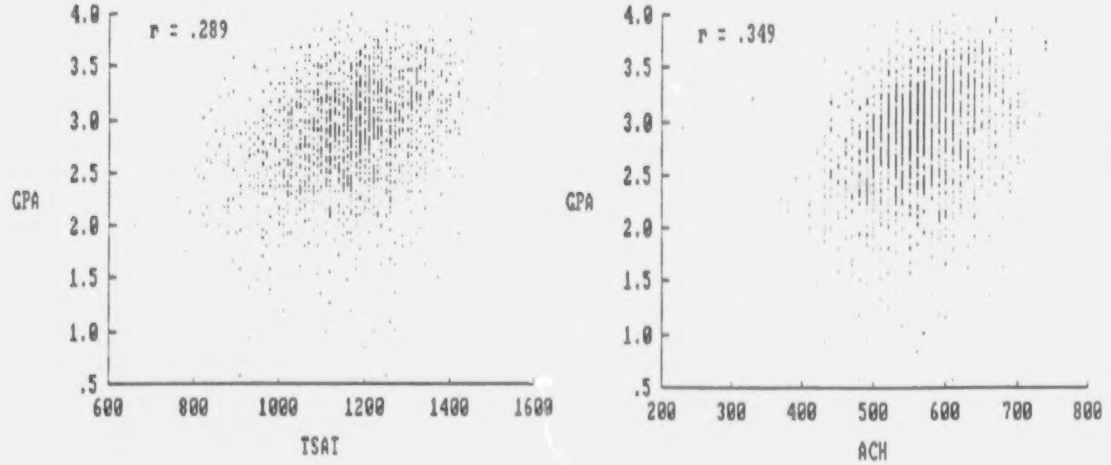

Figure 2. The relationship between cumulative GPA and scores on the TSAT (left) and ACH (right).

"best-fitting" linear regression equations[6] for predicting a given student's GPA from his or her VSAT, MSAT, or ACH scores. Table 4 presents the results of three regression solutions, one using VSAT and MSAT to predict GPA, one using ACH to predict GPA, and one using all three to predict GPA. The coefficients for each regression equation are shown in the second column of the table: the first coefficient in each set is the intercept, and the rest are the partial slopes for each of the predictors used in the regression. The third column of Table 4 presents the p-levels of t-tests which were computed to see if the coefficients differ significantly from 0. The fourth column displays the standard error of estimate ($S_{y.x}$) for each regression solution, and indicates the amount of error you might typically make in attempting to predict a student's GPA using the regression equation. The fifth and sixth columns present the multiple correlation coefficient (R) and the coefficient of determination (R^2), respectively. These statistics measure how well students' GPA's can be predicted from the standardized tests. Finally, the last column of the table shows the p-level obtained from an analysis of variance (F-test) on the overall regression, and evaluates whether or not R^2 differs significantly from 0. If significant, it tells us that the predictor variables entered into the regression can account for some of the variation in GPA.

Table 4. Three regression equations predicting GPA from VSAT, MSAT, and ACH.

Regression	Coefficients	p-level	$S_{y.x}$	R	R^2	p-level
1. GPA =	1.53	<.001	.4603	.309	.096	<.001
	+ .00178 VSAT	<.001				
	+ .000570 MSAT	<.001				
2. GPA =	1.25	<.001	.4533	.349	.122	<.001
	+ .00287 ACH	<.001				
3. GPA =	1.14	<.001	.4500	.368	.136	<.001
	+ .000938 VSAT	<.001				
	- .000232 MSAT	.161				
	+ .00237 ACH	<.001				

As might be expected from Figures 1 and 2, the R^2 values are disappointingly low. VSAT and MSAT account for 9.6% of the variation in GPA, ACH alone accounts for 12.2%, and all three predictors together account for only 13.6% of the variation. One reason the R^2 values are not larger is because the sample suffers from a "truncated" range effect. Since most students admitted to Bates are fairly high in academic ability, there will be less variability in the grades received by these students than would be the case at less selective institutions. As the variability in GPA's (S_y) decreases relative to the error of prediction ($S_{y.x}$), the value of R^2 decreases as well[7]. Therefore, an institution like Bates will inevitably have lower R^2 values than larger, state universities. Likewise, to the extent that Bates faculty tend to over-assign "B" grades and under-assign "F", "D", "C", and "A" grades, this will produce an additional restriction in the range of GPA's across students, with a corresponding reduction in R^2.

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[6] Of the form $Y = a + b_1X_1 + b_2X_2 \ldots + b_kX_k$, where Y is the predicted variable (GPA), and X_1, X_2, ... X_k are the predictor variables (VSAT, MSAT, ACH). The regression solution is designed to maximize the fit between the actual and predicted values (GPA's).

There is a last factor which may be contributing to the low R^2 values shown in Table 4. With the introduction of the optional SAT policy in 1985, along with the attendant publicity, it is reasonable to suppose that a number of students who tested poorly on the SAT's applied to Bates in part *because* of the new policy. While this group would include students who performed poorly on all the available measures (ACH, high school grades, etc), such students would not normally be admitted to Bates. On the other hand, those students who do poorly on the SAT's but well on the other available measures would tend to be admitted under the new policy. Assuming these students do satisfactory work at Bates, this would mean that we are adding students to the database for whom the SAT's are not predictive. Consequently, a regression analysis including such students will necessarily produce lower R^2 values than one which does not. This would explain why the R^2 values in Table 4 are generally lower than those obtained in studies done at Bates prior to 1985. For instance, several earlier studies found that VSAT and MSAT usually accounted for 12-18% of the variation in GPA, in contrast to the figure of 9.6% reported in Table 4.

Summary. In conclusion, the regression analyses in Table 4 show that none of the standardized tests predict students' performance very well. Furthermore, it appears that SAT and achievement tests can be used more or less interchangeably: each accounts for roughly 10-12% of the variation in GPA, both together only raise this figure to 13%, and there is considerable overlap in what the two types of test predict. From the point of view of prediction, it would seem immaterial which of the two standardized tests (SAT, ACH) the student submits to Bates. Furthermore, allowing the student to submit either the SAT or ACH would vastly increase the potential applicant pool from which the Admissions Office can draw.

Submitters vs Nonsubmitters

In the first section of this report, we demonstrated that the academic quality of recently admitted classes is on the rise. While this is reassuring, it is possible that the optional SAT policy is producing a more *diverse* class, with "submitters" being better qualified, and "nonsubmitters" being less qualified, than the students admitted under the old policy. Since submitters outnumber nonsubmitters 3 to 1, this situation would still produce an upward trend in the various test scores. However, the presence of greater numbers of poorly qualified students would certainly pose problems for the institution in terms of teaching, advising, and the like. In this section, we examine this issue by explicitly comparing the academic performance of submitters and nonsubmitters.

Relative numbers of submitters and nonsubmitters. Table 5 presents the number and percents of submitters and nonsubmitters admitted to Bates over the six year period covered by this study (1984-1989). Since the optional SAT policy was instituted in 1985, all of the students admitted in

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[7] This is evident from the relation: $R^2 = 1 - (S^2_{y.x}/S^2_y)$

Table 5. Numbers and percents of submitters and nonsubmitters by year.

Status	84	85	86	87	88	89	85-89
Submit.	414	331	255	290	289	279	1444
%	100.0	85.5	72.4	75.3	76.3	73.4	76.7
Nonsub.	0	56	97	95	90	101	439
%	0.0	14.5	27.6	24.7	23.7	26.6	23.3
Total N	414	387	352	385	379	380	1883

1984 are regarded as "submitters", although they did not, of course, have any choice in this regard. In 1985, 14.5% of the students admitted to Bates elected not to submit their SAT scores, but thereafter the percentage of nonsubmitters has remained fairly constant at about 25% of each entering class. Collapsed across 1985-1989, 76.7% of the students admitted were submitters and 23.3% were nonsubmitters. In the remaining sections of this report, we compare submitters and nonsubmitters on academic standing, academic performance, and predicted GPA.

Academic standing. The first, and perhaps most important, dimension for comparing submitters and nonsubmitters is based on overall academic standing. Given the typically lower SAT scores for nonsubmitters than submitters (see below), it is possible that nonsubmitters might

Table 6. Academic standing of submitters and nonsubmitters from 1985-1989.

		Academic Standing				
Year	Status	Good	Probation	Dismissed	X^2	p-level
85	Submit.	309 (93.4%)	17 (5.1%)	5 (1.5%)	1.13	.5675
	Nonsub.	54 (96.4%)	2 (3.6%)	0 (0.0%)		
86	Submit.	234 (91.8%)	16 (6.3%)	5 (2.0%)	1.98	.3716
	Nonsub.	86 (88.7%)	10(10.3%)	1 (1.0%)		
87	Submit.	281 (96.6%)	7 (2.4%)	2 (0.7%)	3.96	.1382
	Nonsub.	89 (93.7%)	6 (6.3%)	0 (0.0%)		
88	Submit.	280 (96.9%)	7 (2.4%)	2 (0.7%)	0.64	.7261
	Nonsub.	88 (97.8%)	2 (2.2%)	0 (0.0%)		
89	Submit.	275 (98.6%)	4 (1.4%)	0 (0.0%)	0.11	.9454
	Nonsub.	100 (99.0%)	1 (1.0%)	0 (0.0%)		
85-89	Submit.	1379 (95.5%)	51 (3.5%)	14 (1.0%)	3.71	.1562
	Nonsub.	417 (95.0%)	21 (4.8%)	1 (0.2%)		

account for a disproportionate number of the students dismissed or placed on probation. To investigate this matter, we determined for each student if he or she had (1) been in good academic standing each and every semester, (2) been placed on probation (but not dismissed) for at least one semester, or (3) been dismissed from the college for failure to maintain adequate academic standing. For purposes of the present analysis, students placed on probation prior to being academically dismissed were placed in the third category. Table 6 presents number and percentage of submitters and nonsubmitters falling into each category of academic standing for 1985-1989. The X^2 tests determine if the distribution of percentages differ significantly between the submitters and nonsubmitters in any given year. As is evident, the percentage of students in good academic standing ranges between 92-99%, and does not differ consistently for submitters and nonsubmitters. In the data pooled across 1985-1989, we see that for submitters and nonsubmitters, respectively, 95.5% and 95.0% are in good academic standing, 3.5% and 4.8% are on probation, and 1.0% and .2% were dismissed. The last figures are particularly interesting: of the 15 students dismissed from Bates between 1985 and 1989, 93.3% (14 of 15) were submitters, and only 7.1% (1 of 15) were nonsubmitters. These values differ from the actual percentages of submitters (76.7%) and nonsubmitters (23.3%) in the overall sample (Table 5), and show that nonsubmitters are somewhat less likely to be dismissed than expected.

Academic performance. Table 7 presents the overall means, collapsed across 1985-1989, for submitters and nonsubmitters on the various academic measures employed in the present study. The p-levels indicate the results of t-tests comparing the two groups: not surprisingly, submitters score significantly higher ($p < .0001$) than nonsubmitters on VSAT, MSAT, TSAT, and ACH. In addition, there is a marginally significant difference in the mean GPA of submitters (2.89) and nonsubmitters (2.84). However, this difference is small in relation to the other differences observed. The point biserial correlation coefficient, r_{pb}, may be used to assess the relative magnitude of the submitter-nonsubmitter differences on the various measures[8]. The last column in Table 7 shows that $r_{pb} = .045$ for the GPA measure, whereas r_{pb} ranges between .300 and .538 for the standardized test measures. In other words, while submitters and nonsubmitters differ substantially on VSAT,

Table 7. Overall comparisons of submitters and nonsubmitters on the various measures.

Variable	Submitter	Nonsubmitter	p-level	r_{pb}
VSAT	582	508	<.0001	.433
MSAT	620	540	<.0001	.443
TSAT	1203	1048	<.0001	.538
ACH	579	537	<.0001	.300
GPA	2.89	2.84	.0500	.045

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[8] The Pearson product-moment correlation coefficient, r_{xy}, measures the linear relationship between two continuous variables. The statistic r_{pb} is employed when one variable is dichotomous (submitter vs nonsubmitter) and the other is continuous (GPA).

MSAT, TSAT, and ACH, they differ only slightly on GPA. Squaring the correlation tells us that submitter status can account for only *two-tenths* of *one* percent of the variation in GPA[9].

Table 8 presents comparisons of submitters and nonsubmitters on each measure for every class from 1985 to 1989. The p-levels are not shown because the results are simple: submitters and nonsubmitters differ significantly on VSAT, MSAT, TSAT, and ACH for each and every class; however, the two groups do *not* differ significantly on cumulative GPA in *any* of the five classes. In fact, for the class entering in 1985, the nonsubmitters had a higher mean GPA (2.95) than the submitters (2.91). Note that the 1985 mean GPA's are based on all eight semesters of cumulative performance, so these values are not going to change. In any event, the figures in Table 8 confirm the findings above, showing that while nonsubmitters are clearly inferior to submitters on the standardized test measures, they are essentially equal in ability on the GPA measure.

Table 8. Means on the variables for submitters and nonsubmitters from 1985 to 1989.

Variable	Status	85	86	87	88	89	85-89
VSAT	Submit.	569	581	589	584	592	582
	Nonsub.	491	501	516	514	513	508
MSAT	Submit.	606	607	632	627	632	620
	Nonsub.	539	525	534	553	550	540
TSAT	Submit.	1175	1188	1221	1210	1224	1203
	Nonsub.	1030	1025	1050	1066	1062	1048
ACH	Submit.	570	569	586	581	588	579
	Nonsub.	538	521	547	538	540	537
GPA	Submit.	2.91	2.89	2.90	2.88	2.86	2.89
	Nonsub.	2.95	2.79	2.86	2.85	2.79	2.84

Figures 3-5 plot the mean VSAT, MSAT, TSAT, ACH, and GPA for submitters, nonsubmitters, and overall for each year from 1985 to 1989. The superior performance of the submitters on all of the standardized test measures is evident, as is the absence of a similar large difference on the GPA measure[10]. In addition, Figures 3 and 4 clearly show the improvement in standardized test scores over the five year period under the new SAT policy. (The apparent

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[9] That such a small difference is significant is testimony to the effect of large sample size (N = 1883) on the sensitivity of the t-test.

[10] To allow for fair comparisons across plots, the Y axis in each graph was scaled to be approximately 1.67 times the standard deviation of the Y variable. Using this criterion, we see that the differences between the submitters and nonsubmitters are "large" relative to the standard deviations of the VSAT, MSAT, TSAT, and ACH variables, but "small" relative to the standard deviation of the GPA variable.

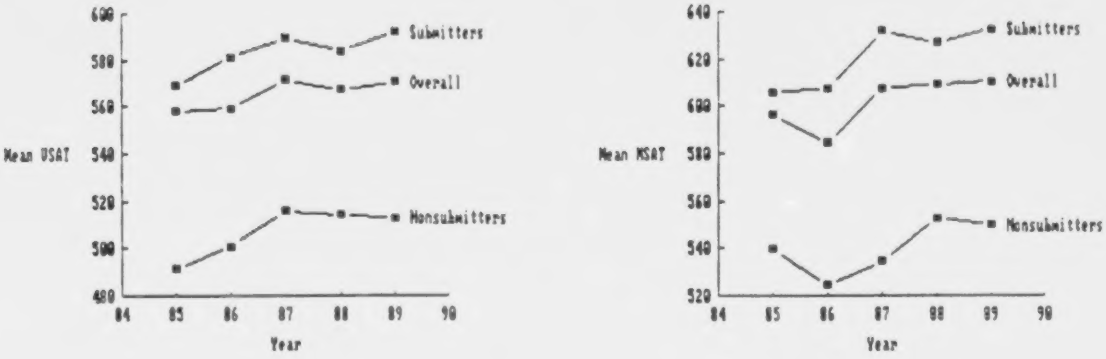

Figure 3. Mean scores on the VSAT (left) and MSAT (right) by year for submitters, nonsubmitters, and overall.

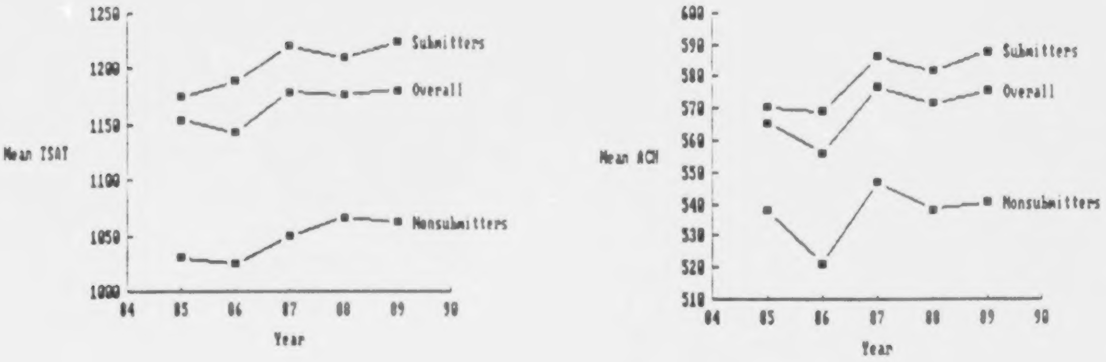

Figure 4. Mean scores on the TSAT (left) and ACH (right) by year for submitters, nonsubmitters, and overall.

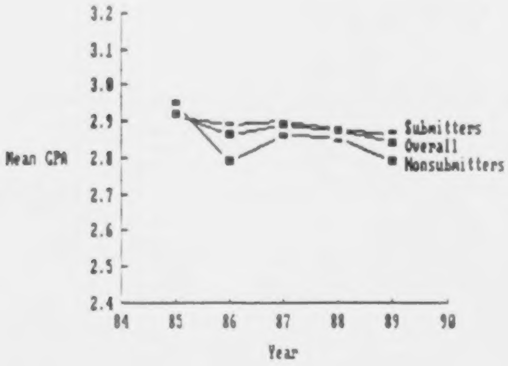

Figure 5. Mean cumulative GPA for submitters, nonsubmitters, and overall.

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absence of an upward trend in GPA was explained in the first section of this report.)

Predicted GPA. The data plotted in Figures 3-5 indicate that, for whatever reason, nonsubmitters seem to be doing better at Bates than would be expected on the basis of their SAT (or ACH) scores. One hypothesis, put forward in the preliminary report of 1986, is that nonsubmitters somehow "know" that the SAT tests do not tap their actual ability, and go on to prove this by obtaining higher grades at Bates than would be predicted on the basis of these tests. We can gain some insight into this possibility by using regression equation 1 from Table 4 to obtain a predicted GPA (based on VSAT and MSAT) for each and every student admitted to Bates from 1985 to 1989. We can then simply average the predicted GPA's of the 439 nonsubmitters in the sample and compare this value to their average cumulative GPA. As it turns out, the average *predicted* GPA of the nonsubmitters is 2.74, in contrast to their *actual* GPA of 2.84. This discrepancy in actual vs predicted performance is intriguing, and we decided to explore it in greater depth.

Using the approach just described, the predicted GPA's for submitters and nonsubmitters were obtained individually for each entering class, as well as for the data pooled across 1985-1989. For the individual analyses, predicted GPA's were computed for each class based on the regression equation obtained for that particular class. Table 9 presents the results of these analyses. As can be seen, the submitters in each entering class perform slightly less well than would be predicted from their VSAT and MSAT scores. Conversely, the nonsubmitters perform better than predicted, and this difference is often quite substantial: e.g., the 1985 entering class was predicted to have a GPA of 2.79, and in fact had a GPA of 2.95. Paired t-tests verified that the actual and predicted GPA's of nonsubmitters differed significantly ($p < .05$) for every class except 1987, where the difference was significant at $p = .077$. Comparisons of the submitters' actual and predicted GPA's did not reveal significant differences in any of the entering classes[11].

Table 9. Actual vs predicted GPA for submitters and nonsubmitters from 1985 to 1989.

Status	GPA	85	86	87	88	89	85-89
Submit.	Actual	2.91	2.89	2.90	2.88	2.86	2.89
	Predict.	2.94	2.92	2.93	2.92	2.90	2.92
Nonsub.	Actual	2.95	2.79	2.86	2.85	2.79	2.84
	Predict.	2.79	2.69	2.78	2.74	2.69	2.74

A slightly different way to examine the nonsubmitters' performance relative to expectation is to look at the errors of prediction which are made when using VSAT and MSAT to predict

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[11] However, a comparison based on the data pooled across 1985-1989 revealed that the submitters' actual GPA of 2.89 was significantly lower than the predicted GPA of 2.92 ($p = .015$).

GPA. A positive error of prediction indicates that the student did better than predicted, whereas a negative error of prediction indicates the reverse. Given the nature of the regression solution, roughly half the errors of prediction should be positive, and half negative. What we wish to assess now is whether this is equally true of submitters and nonsubmitters. Table 10 presents the number (and percent) of submitters and nonsubmitters who do better or worse than predicted based on regression equation 1 from Table 4. We see that 50.7% of the submitters and 61.3% of the nonsubmitters do better than predicted. This difference is significant, and indicates that nonsubmitters account for a proportionately greater number of the positive (better-than-predicted) errors of prediction in the overall sample: $X^2 = 15.14$, $p < .0001$. This finding is discussed in greater detail below.

Table 10. Submitters and nonsubmitters doing better or worse than predicted.

Status	Worse	Better	Overall
Submit.	712	732	1444
%	49.3	50.7	100.0
Nonsub.	170	269	439
%	38.7	61.3	100.0

Regression artifacts. As noted in the preliminary report, a portion of the better-than-expected performance of nonsubmitters may be due to statistical regression effects: i.e., the fact that a group initially selected as extreme on a measure (e.g., low SAT scores) will tend to regress toward the mean upon re-measurement. Such effects are usually interpreted in the context of re-measurement on the same scale (i.e., SAT scores) as initially used to form the extreme group. It is less clear how regression to the mean on the SAT measure would explain the better than expected performance of the nonsubmitters on a different (but related) measure such as GPA. Nevertheless, the tendency for both the submitter and nonsubmitter GPA's to be shifted toward the middle of the distribution, relative to prediction, is certainly reminiscent of classic statistical regression phenomena.

To evaluate the possible contribution of a "regression effect" to the nonsubmitters' better-than-expected performance, computer simulations were conducted[12]. The simulations permitted us to generate simulated datasets having the same general properties as the dataset analyzed in this report. That is, we were able to generate GPA, VSAT, and MSAT scores having the same means, standard deviations, intercorrelations, and multiple linear regression relationship as the 1985-1989 data analyzed above. For each simulated dataset, N = 1883 sets of scores were generated, the same as the number of students in the combined 1985-1989 sample. The simulated VSAT and MSAT scores were added to obtain TSAT, and then the entire dataset sorted on the basis of the TSAT scores. The 439 *lowest* TSAT scores -- representing the simulated "nonsubmitters" -- were then pulled from the dataset, and the mean GPA computed. If statistical regression causes the GPA of this "extreme" group to shift upward (toward the overall sample mean), then the value of the mean will be *higher* than predicted when using the overall regression equation. In three separate simulations, the simulated datasets produced the following actual vs predicted GPA's for the 439

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[12] The statistical simulation package, DATASIM (Bradley, 1988), was used to perform the simulations. The program allows the user to generate univariate and multivariate datasets consisting of random variables having whatever central tendency, variability, and intercorrelation is desired.

"nonsubmitters": (1) 2.675 vs 2.670, (2) 2.708 vs 2.708, and (3) 2.707 vs 2.708. Given the small and inconsistent differences between these means, there is no evidence to suggest that statistical regression can account for the differences reported in Table 9 between the actual and predicted GPA's of the nonsubmitters.

Accounting for differences in predicted and actual GPA. The simulation results leave us with an interesting question. Just how is it that the actual and simulated datasets differ, given that the observed and predicted GPA's are similar in the latter but not the former? Since the simulated datasets duplicate the means, standard deviations, and correlations of the actual 1985-1989 sample, any differences between the two must lie in the distribution properties of the variables, and in the bivariate (and multivariate) relationships between them. Consider Figure 6 which plots the relationship between GPA and TSAT for the actual 1985-1989 data, and Figure 7 which plots this same relationship for one of our simulated datasets (set #3). Since the simulation program generates data following a multi-normal distribution, Figure 7 shows a more or less oval-shaped scatterplot having increasing density toward the center and decreasing density toward the periphery, as expected for two variables following a bivariate normal distribution. The surrounding border highlights the basic shape of this bivariate relationship.

Figure 6, on the other hand, shows a decidedly non-normal bivariate relationship between GPA and TSAT for the actual data. The data points in the scatterplot "fan out" in the upper left and lower right quadrants of the plot. There are a number of data points in the upper left quadrant (students scoring low on TSAT but having reasonable GPA's) which in Figure 7 are located in the lower left quadrant of the plot (students scoring low on both TSAT and GPA). Furthermore, there seem to be a number of data points in Figure 6 which have "fallen out" of the scatterplot and into the lower center and lower right quadrant of the plot (students scoring average or better on TSAT, but having low GPA's). While the *degree* of relationship between GPA and TSAT is very nearly identical in the actual (r = .289) and simulated (r = .288) datasets, the bivariate distributions are quite different. It is this latter aspect of the data which probably accounts for the discrepancy in the actual and predicted GPA's for nonsubmitters: the data points in the upper left quadrant of Figure 6 are primarily those of the nonsubmitters. As can be seen, they are performing better than expected based on the overall bivariate relationship: i.e., they are getting average or high GPA's even though their TSAT's are quite low.

Of course, there is no way to tell from Figure 6 which of the data points belong to submitters and which belong to nonsubmitters. To facilitate this comparison, Figure 8 plots the relationship between GPA and TSAT separately for the nonsubmitters (left) and submitters (right). Note that the axes of the scatterplots have been scaled the same, and match those employed in Figure 6. A careful inspection of the two plots reveals that the nonsubmitter data points are displaced upward relative to the *basic trend* established by the submitter data. Since nonsubmitters have lower TSAT scores than submitters, we would expect the height of the nonsubmitter scatterplot to be *lower* than that of the submitter scatterplot. As shown in Figure 8, the heights of the two plots are virtually the same. This indicates that the nonsubmitters are getting higher grades than expected on the basis of the overall relationship between GPA and TSAT. Consequently, the fanning out of the data points in the upper left quadrant of Figure 6 is primarily due to the better-

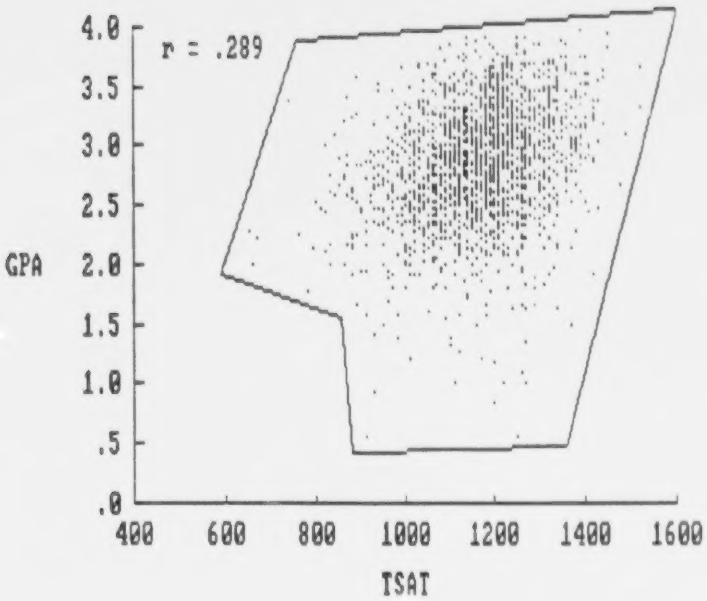

Figure 6. The relationship between GPA and TSAT for the actual data (1985-1989).

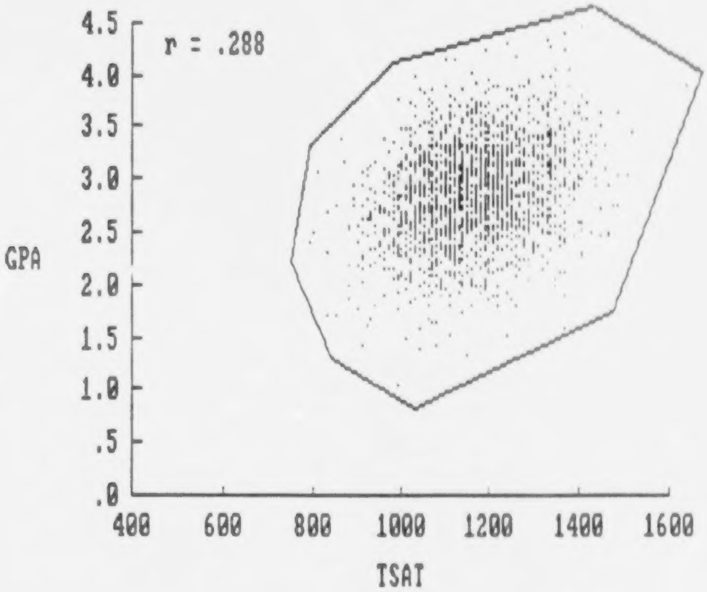

Figure 7. The relationship between GPA and TSAT for the simulated data (1985-1989).

than-expected performance of the nonsubmitters[13].

Adjusting the GPA's of nonsubmitters. How would the nonsubmitters have to perform for their grades to be consistent with the relationship observed for the submitters? We can answer this question by obtaining the regression equation predicting GPA from VSAT and MSAT for *just* the submitters (N = 1444). The equation is GPA = 1.17 + .00201 VSAT + .000882 MSAT, with $S_{y.x} = .4605$ and $R^2 = .104$. We can now use this equation to predict the GPA of the nonsubmitters by substituting in their (generally lower) VSAT and MSAT scores. When this is done, the mean *predicted* GPA for the nonsubmitters is 2.67, in contrast to their *actual* GPA of 2.84[14]. We can now "adjust" the nonsubmitter data by subtracting .17 (i.e., 2.84 - 2.67) from each and every GPA. These adjusted GPA's will now have a mean of 2.67, just as would be predicted using the submitters' regression equation. The left scatterplot in Figure 9 plots the adjusted GPA's against the TSAT scores. For comparison, the submitter scatterplot from Figure 8 is reproduced on the right of Figure 9. Note that the adjusted scatterplot more or less follows the basic trend established by the submitter data, because it has been shifted down by .17 of a grade point. Put simply, Figure 9 shows what the nonsubmitter data would look (relative to the submitter data) if the nonsubmitters had performed as expected on the basis of their lower TSAT scores.

The preceding analyses clearly demonstrate that nonsubmitters perform better than predicted on the basis of their SAT scores. As noted earlier, this will tend to reduce the predictability of the SAT test for regression solutions applied to the overall sample of students. However, this does not mean that the SAT's are necessarily poorer predictors for nonsubmitters than submitters when the data are analyzed individually for each group. In fact, when a regression equation for predicting GPA from VSAT and MSAT is obtained for *just* the nonsubmitters (N = 439), it turns out that $R^2 = .140$. For the regression analysis of the submitters' data reported above, $R^2 = .104$. Note that the R^2 values for both subgroups are actually *higher* than the value reported in Table 4 for the overall analysis, where $R^2 = .096$. In other words, the SAT's can predict the performance of nonsubmitters and submitters better when the regression equations are obtained for each group separately, than when the data are pooled across groups. This finding implies the existence of

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[13] If the actual data were distributed as in Figure 7 (the simulated data), it would be still be possible for nonsubmitters to perform better, and submitters worse, than predicted. This could occur, for example, if a proportionately greater number of the data points above the regression line belonged to nonsubmitters, with the reverse holding true for the data points below the regression line.

[14] This predicted GPA (2.67) is even more discrepant from the nonsubmitters' actual GPA (2.84) than reported previously in Table 8 (2.74). The latter predicted value was based on a regression solution which included *both* the nonsubmitters and submitters. Since the GPA data of the nonsubmitters are displaced upward (Figure 6), the regression solution will try to accommodate this to some extent. Consequently, the predicted GPA for the nonsubmitters will not be as far off in this case as it is when the regression solution is based only on the submitters' data.

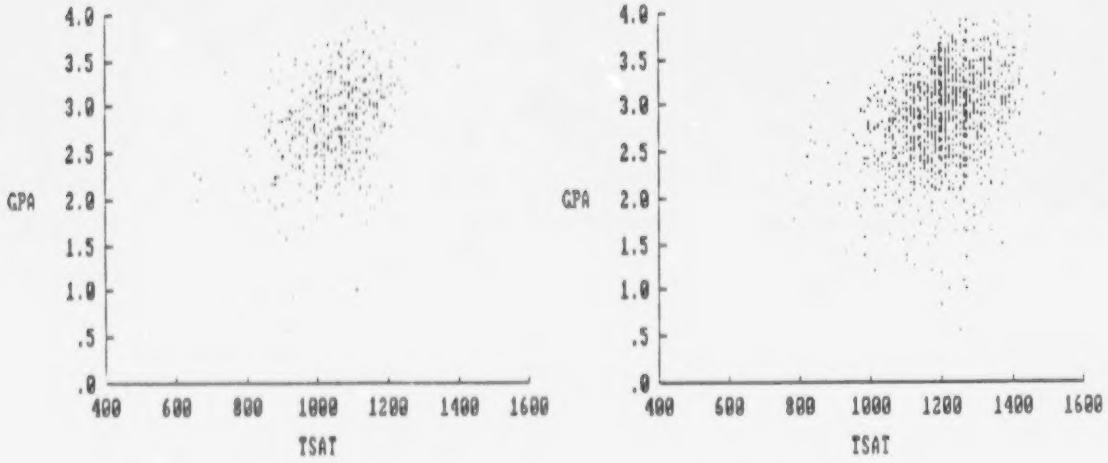

Figure 8. The relationship between GPA and TSAT plotted separately for nonsubmitters (left) and submitters (right).

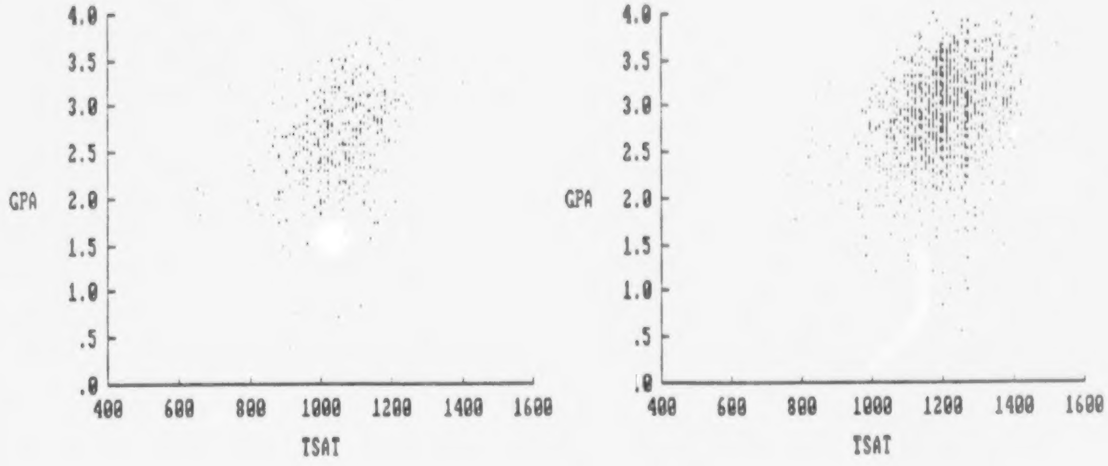

Figure 9. The relationship between GPA and TSAT for nonsubmitters (left) when adjusted using the regression solution for submitters (right).

"heterogeneous" subgroups in the overall sample.[15] As shown in Figure 8, the nonsubmitter and submitter subgroups do not form a continuous scatterplot running from the lower left to the upper right, because the nonsubmitter data are displaced upward from the main diagonal. This is why the R^2 values are higher when the subgroups are analyzed individually (Figure 8, left and right), than when they are pooled (Figure 6).

Summary. Whether or not our explanation of the discrepancy in actual vs predicted GPA's for nonsubmitters is plausible, the fact remains that nonsubmitters are not at substantially higher risk of doing poorly at Bates than other students. Their average GPA's are only slightly lower than those of submitters, their actual performance is higher than predicted, and they are in no greater danger of being dismissed or placed on academic probation. Consequently, the optional SAT policy does not seem to be attracting more poorly qualified students to Bates.

Conclusion

This report has examined in detail the performance of the last six classes admitted to Bates. We find that the standardized test scores of these students have been increasing steadily from 1984 to 1989, and that the GPA performance of the nonsubmitters in each class is comparable to that of the submitters. There is nothing in the data to suggest that we would benefit by returning to the pre-1985 policy, which required applicants to submit both their SAT and achievement test scores. In fact, there is much in the data that would call into question the policy of requiring *any* standardized test scores, given how poorly they predict academic performance at Bates. This is an issue that will need to be explored in greater depth in the future.

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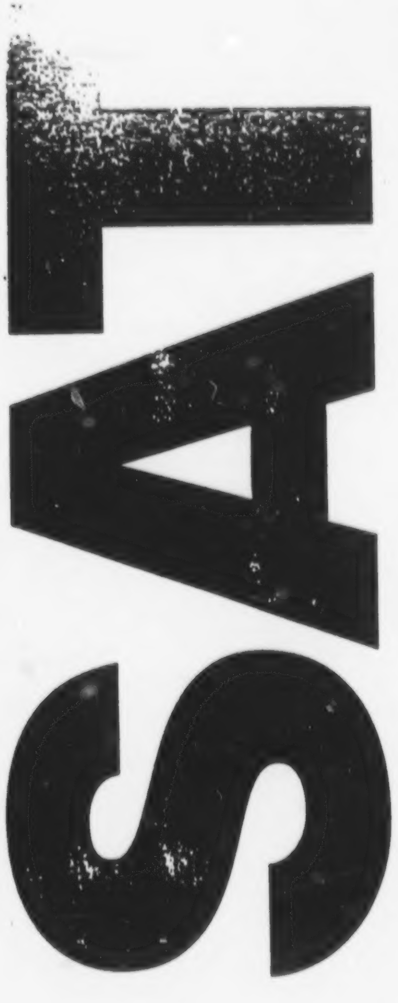
[15] Depending on the relative positions of the subgroups in the overall scatterplot, pooling the data can result in either a higher or lower value of R^2 than would arise when analyzing the data separately for each subgroup. To illustrate, assume that two variables (e.g., GPA and TSAT) have a positive correlation. Now, if one subgroup is displaced to the right and *up* in the scatterplot, and the other is displaced to the left and *down*, then this would increase the value of the pooled R^2 because it would "augment" the already existing positive relationship between the two variables. On the other hand, if one subgroup is displaced to the right and *down* in the scatterplot, and the other is displaced to the left and *up*, then this would decrease the value of the pooled R^2 because it would "counteract" the otherwise positive relationship between the variables. It is the latter situation which properly characterizes our data: as is shown in Figure 8, the submitters are displaced to the right and down, and the nonsubmitters are displaced to the left and up. (The effect is more marked for the nonsubmitters.) These displacements account for the differences in actual and predicted GPA summarized earlier in Table 8: the nonsubmitters always to better, and the submitters worse, than predicted.

Optional SAT's: Six Years Later

BY WILLIAM C. HISS '66
Dean of Admissions and Financial Aid



Six years ago, in October of 1984, the faculty at Bates voted to make Scholastic Aptitude Tests (SAT's) optional for admission to the College — a bold move, and one we haven't regretted.

Discussions leading up to the decision six years ago were lengthy. Comments ranged from the thoughtful ("Will optional SAT's somehow scare off good students?") to the opinionated ("The SAT verbal is the *only* credential that will predict performance in philosophy!"). Some had grave reservations about optional SAT's — that the policy would hurt the academic reputation of Bates, would scare off talented young people, leave counselors unsure of what we wanted or thinking we had gone soft academically, or that hundreds of low-scoring no-accounts would apply.

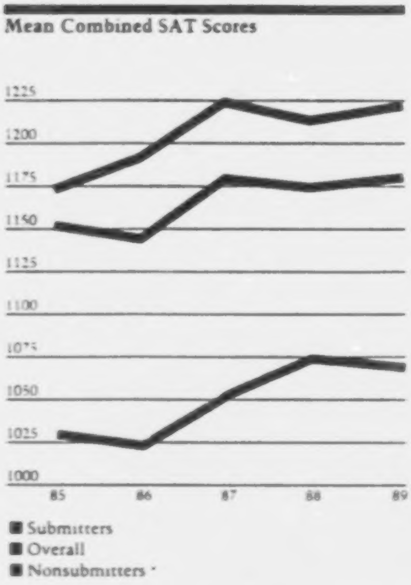
The final faculty vote was two to one in favor of making SAT's optional for admission, despite the worries. Riding as it did a nationwide wave of concern about standardized testing, the Bates decision has become a national test case. The policy has produced what is probably the longest sustained run of publicity the College has had, virtually all of it favorable. We started by writing to the 5,000 high schools and 25,000 students then on our mailing list to let them know of the decision. The media, when they heard of it, picked up on it enthusiastically. The file of print articles, TV tapes, and radio interviews about our SAT decision is now well over a foot thick, and research at other institutions has essentially supported our point, though few colleges have followed Bates in making SAT scores optional.

The Issues

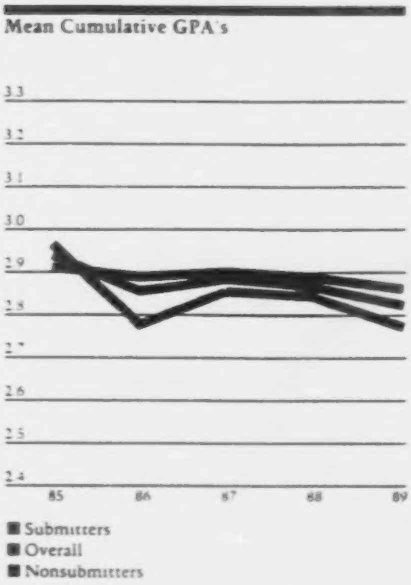
Bates's decision to make SAT's optional involved four issues. First, our research at that time suggested that the predictive value of the SAT's and Achievement Tests (at that time Bates was requiring both sets of testing) substantially overlapped, and that the value of the testing was reasonably modest either alone or in tandem with other credentials. Second, the faculty felt strongly that the SAT's were simply occupying too much emotional space in the middle of the entire national system of admissions. The SAT's were producing in hundreds of thousands of teenagers a kind of mass hysteria, an unholy amalgam of passive surrender and frantic coaching for the tests.

The mania for coaching for the SAT's has led to some research at Bates. We honestly cannot tell whether coaching works or not, but we have objections to coaching either way. If it does work, it is simply one more advantage in the process for the rich, and means the tests are hardly standardized. If it does not work, the students are wasting their time, their money, and (most important) their self-confidence. We think coaching distracts a student at precisely the critical moment when young people need to build up confidence and personal steam for critical thinking, effective writing, and developing strong analytical skills. Our decision was an attempt to say to these young people, Use your time and your energy to create real forward motion in your life: read Dostoevski, take AP Calculus, work in a resettlement house for immigrants, get involved with Amnesty, lead the soccer team — do any of these and as many as you can find time for.

Third, there was a growing sense that SAT's were sometimes unhelpful, misleading, and unpredictive for students in whom Bates has always been interested: minority students, rural and Maine students, first-generation college students, and foreign-born or bilingual students. Bates's reasonably high average SAT scores were scaring many good students off. More families than we would like use average SAT scores published in guidebooks to decide if Bates is an appropriate institution for their children, and falsely



Mean Combined SAT Scores



Mean Cumulative GPA's

*Non-submitters' scores often come to the College from sources other than the students themselves, e.g., with other test scores from the College Board or from secondary schools. These scores are *not* seen by those who make admissions decisions and are placed in a blind file until the students enroll, usually in May. At that time, all entering students are required to submit their SAT scores so that research of the sort cited here can be carried out.

and arts, minority students, transfers, international students, nontraditional students, and legacy candidates.

Conclusions: The Five-Year Study of Optional SAT's

Professor of Psychology Drake Bradley, chair of the Faculty Student Committee on Admissions and Financial Aid, has statistically followed this project since its inception. Recently, he completed a scholarly and thorough report to the faculty on the optional SAT policy. His findings make it clear that the policy has had no visible negative impact on the quality of enrollees, and seems in fact to have had a positive impact. While it was not the intention, standardized test scores in the five enrolling classes since the policy was enacted have increased significantly, and grade-point averages — the only available *numerical* measure we have of academic success once a student is enrolled — have kept pace with those of submitters. (Obviously, the full measure of a student's academic achievement at Bates cannot be quantified.)

As in our earlier research, Professor Bradley found that neither SAT's nor Achievements seem to predict GPA with great strength. The verbal and math SAT together accounted for 9.6 percent of the variation in grades, while the Achievement tests accounted for 12.2 percent of the variation. When SAT's and Achievements were combined in a multiple regression analysis, they together accounted for only 13.6 percent of variation in cumulative GPA. These reasonably low prediction figures seem to be due to two factors. First, a "restriction of range" problem: since most of our students have strong records and motivation, the differences in the predictive value of their credentials are quite small. Second, Bates with its optional SAT policy is attracting students who do not have terribly high SAT's, but are otherwise well qualified and in fact do fine academic work at Bates. While the SAT scores of submitters and non-submitters were 160 points apart, *the difference in cumulative GPA's between submitters and non-submitters at Bates was only five one-hundredths of a GPA point,* 2.89 versus 2.84. The submitter status in fact accounts for only *two-tenths of one percent of the variation in cumulative GPA.*

When Professor Bradley looked at the statistics for academic standing, he found more reassuring evidence that the non-submitters were performing well, and perhaps parenthetically, reassuring evidence of the quality of their experiences at Bates. An analysis of academic probation showed that between 92 percent and 99 percent of Bates students in those five years were in good academic standing, and the percentages did not differ significantly for submitters and non-submitters. Of the 1,379 submitters over the five years of the policy, fourteen (or 1 percent) had been academically dismissed. Of the 417 non-submitters, only one (or .2 percent) had been dismissed. These academic dismissal figures are particularly intriguing: only one of the fifteen students dismissed from Bates in the five years between 1985 and 1989 was a non-submitter; 93.3 percent of the dismissals were submitters. The non-submitters, a group that could have been a high-risk experiment, turn out to have a 99.8 *percent academic survival rate.* These results seem to us, to put it mildly, very good. Bates's overall retention figures stand up favorably against those of any college or university in the country, and against those of almost any conceivable cohort group within a college or university.

It seems reasonable to draw three conclusions. First, the quality of Bates's

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mechanical intelligence, emotional intelligence, or even athletic intelligence.

At Bates, we are extending our research on standardized testing and related issues. Neither SAT's nor Achievements have dramatically better predictive value than the other, and with relatively low percentages of economically disadvantaged people taking the Achievement Tests, should we require those tests or even any standardized test? Only 20 percent of SAT takers also take Achievements, and only 7 percent of minority SAT takers take Achievements.

In an admissions world where every requirement for admission represents also a chokepoint through which potential applicants have to pass, we are considering very carefully which test, if any, has enough predictive value to warrant requiring it for all applicants. We are comparing the predictive value of high-school grades and ranks against testing, and will look again at all of the other admissions information in multiple regression analyses to see which qualities will be most helpful to us. We also will be looking at submitters and non-submitters by majors at Bates: do submitters and non-submitters major in different areas, or arrive at departmental or interdisciplinary honors in different numbers? And finally, now that our submitters and non-submitters are starting to graduate in reasonably large numbers, we will try to monitor their progress through careers and other forms of social service over the years.

A final conclusion is inescapable. The quality of Bates's classes is not dependent primarily on which tests or credentials are used as a screening mechanism, but on the broad public signals sent by the College which create the size, quality, and diversity of the applicant pool in the first place. Clearly, the policy of making SAT scores optional has sent a loud signal of the correct sort.

The author acknowledges with hearty thanks the research reports and suggestions of former Admissions Associate Dean Elizabeth Woodcock, former Admissions Counselor David Das, and Assistant Director of Financial Aid Alice McGrath '84. To Professor Drake Bradley, upon whose technical skills and endless advice the Bates research on predictors has depended for most of a decade, we owe an enormous debt. His May 1990 report to the faculty, "The Optional SAT Policy at Bates: A Final Report," is the source of much of the statistical and charted information in this article.

From the ERIC database

Using the SAT and High School Record in Academic Guidance.

Stricker, Lawrence J.; And Others

Abstract: The usefulness of Scholastic Assessment Test (SAT) scores in combination with grades in high school courses and the number and quality of these courses in predicting college grades in various fields was studied for 981 college freshmen. The SAT and collateral variables were able to predict grades in different areas and could be useful in guidance. (SLD)

Title: Using the SAT and High School Record in Academic Guidance.
Author: Stricker, Lawrence J.; And Others
Journal Citation: *Educational and Psychological Measurement*, v56 n4 p626-41 Aug 1996
Note: Research supported by the College Entrance Examinations Board.
Publication Year: 1996
Document Type: Evaluative Report (142); Journal Article (080)

Descriptors: Aptitude Tests; College Entrance Examinations; College Students; * Grades [Scholastic]; * Guidance; Higher Education; High Schools; * High School Students; Humanities; Majors [Students]; * Prediction; Statistical Distributions; * Test Use

Identifiers: *Scholastic Assessment Tests

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From the ERIC database

College Bound Seniors. 1992 Profile of SAT and Achievement Test Takers. National Report.

Abstract: The Admissions Testing Program of the College Board consists of the Scholastic Aptitude Test (SAT), the Test of Standard Written English (TSWE), the Student Descriptive Questionnaire (SDQ), and the Achievement Tests. By registering for the tests and completing the SDQ, students provide information about themselves and their schools for their own planning and for use by high schools, colleges, and the College Board. Mean SAT scores are displayed in this report for different portions of the testing population using information from the SDQ. Of particular interest is the detailed information about students' academic preparation and the number of years of study in various subject areas. Test score distributions are presented, which are identical in format to those provided since 1972 except for the introduction in 1990 of SAT scores at the 25th, 50th, and 75th percentiles. Information on the characteristics of the students' high schools, taken from a survey of secondary schools, is provided, including type, locale, and the size of the senior class. The primary purpose of this report is to provide those who need to interpret SAT scores--students, guidance counselors, admission officers, and many others--with this broader context. The 1992 information for 1,099,639 students is provided in tabular form. (SLD)

Title: College Bound Seniors. 1992 Profile of SAT and Achievement Test Takers. National Report.
Author:
Document Identifier: ERIC Document Reproduction Service No ED351352
Note: 20p.
Publication Year: 1992
Document Type: Statistical Material (110); Project Description (141)

Descriptors: * Achievement Tests; Admission Criteria; * College Bound Students; College Entrance Examinations; High Schools; * High School Seniors; Institutional Characteristics; * National Surveys; * Profiles; Questionnaires; Scores; * Student Characteristics; Tables [Data]; Test Interpretation; Test Results; Test Use

Identifiers: College Board Achievement Tests; *Scholastic Aptitude Test; Student Descriptive Questionnaire; Student Surveys; Test of Standard Written English

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Gender Bias in the College Predictions of the SAT.

Leonard, David K.; Jiang, Jiming

Abstract: This paper demonstrates that the various College Board examinations, most importantly the Scholastic Aptitude Tests (SATs), make predictions of grade point averages at the University of California at Berkeley that are biased against women. This finding persists even when one has made corrections for differences in fields that women and men study and for selection bias. Because women in fact are better students than the SATs predict, they are underrepresented both proportionately and relative to their merit in Berkeley's freshman classes (as they would also be in scholarship competitions and at other selective colleges). The differences in predicted grades are small, but if unbiased tests were used, Berkeley would have at least 5% more women in its freshmen classes (200 to 300 per year). Various solutions to the bias in the SATs are explored. Simple mathematical "fixes" by admissions officers will not work well. The best solution would be for the Educational Testing Service to correct the bias by altering the mix of questions in its tests. Failing this, college admissions staff should significantly expand the numbers of women's applications that are evaluated qualitatively. Five tables and six figures present analysis results. (Contains 18 references.) (Author/SLD)

Title: Gender Bias in the College Predictions of the SAT.
Author: Leonard, David K.; Jiang, Jiming
Document Identifier: ERIC Document Reproduction Service No ED383736
Note: 50p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 18-22, 1995).
Publication Year: 21 Apr 1995
Document Type: Evaluative Report (142); Conference Paper (150)

Descriptors: * College Students; Evaluation Methods; * Females; * Grade Point Average; Grades [Scholastic]; Higher Education; High Schools; * High School Students; Males; * Prediction; * Sex Bias; Sex Differences; Test Bias; Test Construction

Identifiers: College Entrance Examination Board; *Scholastic Aptitude Test; University of California Berkeley

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SATs, Achievement Tests, and High-School Class Rank as Predictors of College Performance.

Baron, Jonathan; Norman, M. Frank

Abstract: The ability of the Scholastic Aptitude Test (SAT), average achievement test scores, and high school class rank to predict students' grades was examined for 3,816 undergraduate students entering the University of Pennsylvania (Philadelphia) in 1983 and 1984. Results suggest that the SAT makes a relatively small contribution to prediction. (SLD)

Title: SATs, Achievement Tests, and High-School Class Rank as Predictors of College Performance.
Author: Baron, Jonathan; Norman, M. Frank
Journal Citation: *Educational and Psychological Measurement*, v52 n4 p1047-55 Win 1992
Publication Year: 1992
Document Type: Journal Article (080); Research Report (143)

Descriptors: * Achievement Tests; Class Rank; * College Entrance Examinations; * College Freshmen; * Grade Prediction; Higher Education; High Schools; * Predictive Validity; Scores; Test Validity; * Undergraduate Students

Identifiers: *Scholastic Aptitude Test; University of Pennsylvania

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From the ERIC database

The Effects of Motivation and Classroom Learning Environment on Black Secondary Students' Verbal and Mathematics SAT Scores.

Payne, Oscar L.

Abstract: The Multidimensional Motivation Instrument and the Classroom Environment Scale were used to examine the effects of the variables motivation (achievement motivation, academic self-concept, social self-concept, and emotional self-concept) and the classroom learning environment (involvement, affiliation, teacher support, task orientation, order and organization, and rule clarity) on the verbal and mathematics Scholastic Aptitude Test (SAT) scores of approximately 300 black high school seniors. The students took the SAT during the fall of the 1989-90 school year. Also studied were the effects of ability and sex on SAT scores. Multiple regression indicated that the motivation variable academic self-concept had significant positive effects on verbal and mathematics scores, but no other motivation variable had significant effects. The classroom learning variable order and organization had a significant positive effect on mathematics scores, but no other classroom variable had significant effects. Ability had the strongest positive effects on verbal and mathematics scores, while sex had a significant inverse effect on mathematics scores. Several significant sex differences were found for involvement, affiliation, and social self-concept. Results suggest a need for more systematic examinations of the achievement of black students in verbal and mathematics areas. One figure and 3 tables present study data, and there is a 59-item list of references. (SLD)

Title: The Effects of Motivation and Classroom Learning Environment on Black Secondary Students' Verbal and Mathematics SAT Scores.
Author: Payne, Oscar L.
Document Identifier: ERIC Document Reproduction Service No ED344917
Note: 38p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 20-24, 1992). For a related document, see TM 018 249.
Publication Year: Apr 1992
Document Type: Research Report (143); Conference Paper (150)

Descriptors: * Academic Achievement; * Black Students; * Classroom Environment; Cognitive Ability; College Entrance Examinations; Grade 12; High Schools; * High School Seniors; Learning Processes; Mathematics Tests; Predictor Variables; * Scores; Self Concept; Sex Differences; * Student Motivation; Verbal Tests

Identifiers: Classroom Environment Scale [Fraser and Fisher]; Multidimensional Motivation Instrument; *Scholastic Aptitude Test; Self Report Measures

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From the ERIC database

Sex Differences in SAT Predictions of College Grades.

Stricker, Lawrence J.; And Others

Abstract: This study examined the role that sex-related differences in the nature of the grade criterion and in variables associated with academic performance play in the over- and under-prediction of college grades by the Scholastic Aptitude Test (SAT) both when the test is used alone and in conjunction with high school grades. An entire freshman class (4,351 students) at a large state university was studied. Women's grade point average (GPA) was underpredicted, but only by a small amount. Adjusting the GPA for differences in grading standards for individual courses did not affect the underprediction, but controlling for sex differences in individual- difference variables concerned with academic preparation, studiousness, and attitudes about mathematics reduced or essentially eliminated the underprediction. Eight figures and 22 tables present results of the analysis. Two appendixes contain classifications and scores, and the study questionnaires. (Author/SLD)

Title: Sex Differences in SAT Predictions of College Grades.
Author: Stricker, Lawrence J.; And Others
Document Identifier: ERIC Document Reproduction Service No ED350336
Note: 58p.
Publication Year: 1991
Document Type: Research Report (143); Test, Questionnaire (160)

Descriptors: * Academic Achievement; Achievement Tests; College Entrance Examinations; * College Freshmen; Females; Grade Point Average; * Grade Prediction; Grades [Scholastic]; Higher Education; Males; Questionnaires; * Sex Differences; Standardized Tests; Student Attitudes; Study Habits

Identifiers: *Scholastic Aptitude Test

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Relationships among High School Grades, ACT Test Scores, and College Grades.

Myers, Richard S.; Pyles, Michelle R.

Abstract: This study assessed the utility of using both the American College Testing (ACT) Program composite score and high school grade point average (GPA) as predictors of students' success in college, as measured by the GPA at the end of the students' first semester in college. Data were obtained from 420 first-time entering freshmen at a medium-sized public regional university in Mississippi whose student body was 60 percent female and 23 percent minority. There were 326 white and 89 black students in the sample. The data included high school grades, ACT scores, four required college course grades, and freshman year GPAs. A regression analysis was performed using freshman year GPA as the dependent variable, with high school GPA and ACT composite score as independent variables. With a multiple R of 0.57, the relationship is significant, accounting for 32 percent of the variance in grade. Grades in required first semester courses were also studied. The data enable comparisons by race and sex. Broadening the base of admission standards to include multicultural diversity will probably be considered by more states in the wake of the U.S. Supreme Court decision on the "Ayers" case. The use of both the ACT score and high school grades would overcome the objections to using only the ACT score, which itself is not a good predictor of college success for many minority students. Six tables are included. (Author/RLC)

Title: Relationships among High School Grades, ACT Test Scores, and College Grades.
Author: Myers, Richard S.; Pyles, Michelle R.
Document Identifier: ERIC Document Reproduction Service No ED353317
Note: 15p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Knoxville, TN, November 11-13, 1992).
Publication Year: Nov 1992
Document Type: Research Report (143); Conference Paper (150)

Descriptors: * Academic Achievement; Black Students; College Entrance Examinations; * College Freshmen; Correlation; Culture Fair Tests; Educational Research; * Grade Point Average; Higher Education; High Schools; High School Students; * National Competency Tests; * Predictor Variables; Racial Bias; Scores; Success; Test Bias; White Students

Identifiers: *American College Testing Program; *Composite Scores

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Trends in the Predictive Validity of the Scholastic Aptitude Test.

Fincher, Cameron

Abstract: Changes in the predictive validity of the Scholastic Aptitude Test (SAT) that have been observed in the University System of Georgia (USGA) over the past two decades were studied. Several analyses were performed using student data from 27 USGA schools to determine the effectiveness of the SAT in predicting freshman grades. National trends indicated that the validity coefficients for high school record (HSR) and HSR+SAT declined from 1964 to 1982. Findings from Georgia also demonstrate an appreciable decrease in validity coefficients for the past 6 or 7 years. The decrease in SAT validity coefficients is accompanied by similar variations for high school average (HSA) coefficients and for multiple correlation coefficients involving combinations of HSA and SAT. The same general trends were observed when annual variations were smoothed by computing 5- and 10-year averages. These general trends were affected by the variability of student abilities, as measured by the SAT, and academic performance, as reflected in high school and college grades. It is cautioned that decreases in the magnitude of validity coefficients do not mean a decline in the meaning and significance of the SAT as a measure of verbal and mathematical abilities. Appendix A contains 5-year averages in validity coefficients, and Appendix B contains profiles of cooperating institutions. (Contains 9 figures, 15 tables, 27 figures in Appendix A, 23 figures in Appendix B, and 7 references.) (SLD)

Title: Trends in the Predictive Validity of the Scholastic Aptitude Test.
Author: Fincher, Cameron
Document Identifier: ERIC Document Reproduction Service No ED395968
Note: 105p.
Publication Year: Dec 1990
Document Type: Evaluative Report (142)

Descriptors: Ability; Academic Achievement; * Change; College Entrance Examinations; College Freshmen; Correlation; * Educational Trends; * Grade Point Average; Higher Education; High Schools; High School Students; * Predictive Validity; * Test Use

Identifiers: *Scholastic Aptitude Test; *University of Georgia

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The ACT as a Predictor of College Success at Trinity Christian College.

Bontekoe, Jon F.

Abstract: This study assessed whether or not the American College Test (ACT) is a good predictor of college success for students at Trinity Christian College in Palos Heights (Illinois) for students entering as freshmen in the fall semesters of 1988, 1989, 1990, and 1991. The total population of 477 included 188 males and 289 females. ACT scores, high school grade point average (GPA), college GPA for the first two semesters, course credits attempted and earned, and other related data were taken from school records for 118 students in 1988, 117 students in 1989, 132 students in 1990, and 110 students in 1991. College GPA can be reasonably predicted from the ACT Composite range, and a breakdown of the six defined ACT ranges shows a distinct relationship between ACT success and success in college. This correlation is higher for females than for males. The correlation between high school GPA and college GPA is even higher than that between ACT scores and college GPA. High school GPA may be a more reliable predictor of college success than ACT composite scores. Twenty-six references are included. (SLD)

Title: The ACT as a Predictor of College Success at Trinity Christian College.
Author: Bontekoe, Jon F.
Document Identifier: ERIC Document Reproduction Service No ED355258
Note: 21p.
Publication Year: 14 Dec 1992
Document Type: Research Report (143)

Descriptors: * Academic Achievement; * College Entrance Examinations; College Freshmen; Correlation; Course Selection [Students]; Females; * Grade Point Average; Higher Education; High Schools; High School Students; Males; Predictive Measurement; * Predictive Validity; Predictor Variables; Sex Differences; * Test Validity

Identifiers: *American College Testing Program; *Trinity Christian College IL

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NEWS ARTICLES

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Table 2: SAT® Averages by State for 1987 and 1994-1997

Comparing or ranking states on the basis of SAT scores alone is invalid and strongly discouraged by the College Board

	1987		1994		1995		1996		1997		% Graduates Taking SAT*
	V	M	V	M	V	M	V	M	V	M	
Alabama	553	535	556	547	565	555	565	558	561	555	8%
Alaska	521	504	510	502	521	513	521	513	520	517	48%
Arizona	539	526	519	519	524	520	525	521	523	522	29%
Arkansas	556	540	552	537	556	542	566	550	567	558	6%
California	500	507	489	506	492	509	495	511	496	514	45%
Colorado	542	535	532	534	538	538	536	538	536	539	30%
Connecticut	515	499	502	497	507	502	507	504	509	507	79%
Delaware	517	496	505	491	505	494	508	495	505	498	65%
D.C.	482	462	479	468	485	471	489	473	490	475	60%
Florida	501	497	490	492	497	496	498	496	499	499	50%
Georgia	478	470	474	474	483	477	484	477	486	481	63%
Hawaii	481	502	477	504	483	507	485	510	483	512	54%
Idaho	548	524	537	529	544	532	543	536	544	539	15%
Illinois	539	540	553	562	563	574	564	575	562	578	14%
Indiana	492	487	488	493	492	494	494	494	494	497	57%
Iowa	588	586	580	586	589	595	590	600	589	601	5%
Kansas	572	562	568	565	576	571	579	571	578	575	9%
Kentucky	554	538	549	543	552	542	549	544	548	546	12%
Louisana	548	530	556	549	560	552	559	550	560	553	10%
Maine	510	493	497	490	504	497	504	498	507	504	67%
Maryland	513	502	505	503	506	503	507	504	507	507	64%
Massachusetts	511	500	502	500	505	502	507	504	508	508	80%
Michigan	534	533	547	554	559	565	557	565	557	566	11%
Minnesota	548	549	569	576	580	591	582	593	582	592	9%
Mississippi	561	540	559	546	572	557	569	557	567	551	4%
Missouri	549	538	560	554	569	566	570	569	567	568	9%

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Montana	555	548	540	542	549	553	546	547	545	548	22%
Nebraska	563	562	557	559	568	570	567	568	562	564	9%
Nevada	516	508	506	508	511	508	508	507	508	509	32%
New Hampshire	527	512	515	510	520	515	520	514	521	518	70%
New Jersey	502	493	494	500	496	503	498	505	497	508	69%
New Mexico	559	544	550	546	559	549	554	548	554	545	12%
New York	501	495	492	497	495	498	497	499	495	502	74%
North Carolina	477	468	482	482	488	482	490	486	490	488	59%
North Dakota	583	573	570	573	587	602	596	599	588	595	5%
Ohio	532	521	533	531	536	535	536	535	535	536	25%
Oklahoma	560	539	557	554	565	553	566	557	568	560	8%
Oregon	521	509	513	515	525	522	523	521	525	524	50%
Pennsylvania	505	491	494	489	496	489	498	492	498	495	72%
Rhode Island	509	492	496	488	502	490	501	491	499	493	70%
South Carolina	474	466	473	473	478	473	480	474	479	474	56%
South Dakota	587	577	558	563	579	576	574	566	574	570	4%
Tennesee	563	543	562	553	571	560	563	552	564	556	13%
Texas	493	486	489	500	495	501	495	500	494	501	49%
Utah	577	557	582	573	585	576	583	575	576	570	4%
Vermont	518	500	504	498	506	499	506	500	508	502	69%
Virginia	511	499	501	495	504	494	507	496	506	497	69%
Washington	532	519	511	512	519	517	519	519	523	523	46%
West Virginia	534	519	516	507	525	509	526	506	524	508	18%
Wisconcin	550	551	562	575	574	585	577	586	579	590	7%
Wyoming	557	551	535	541	551	544	544	544	543	543	12%
National	507	501	499	504	504	506	505	508	505	511	42%

*Based on the number of high school graduates in 1997 as projected by the Western Interstate Commission for Higher Education, and number of students in the Class of 1997 who took the SAT I.

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1997 Top Eight California Public High Schools

School	1996 AP Pass Rate	Verbal	Math	Total	CA-Percentile	Rank
Whitney (Gretchen) High	4.34	649	677	1326	100.0%	1
Saratoga High	1.8	600	639	1239	93.4%	2
Lynbrook High	1.11	588	643	1231	92.8%	3
Gunn (Henry M.) High	1.93	594	636	1230	92.8%	4
Palo Alto High	1.3	595	617	1212	91.4%	5
University High	1.67	574	634	1208	91.1%	6
Piedmont High	.91	585	619	1204	90.8%	7
Miramonte High	1.19	584	615	1199	90.4%	8

The eight schools on this list were within 10% of the top scoring high school, Whitney High. Of the eight, only Piedmont had an 1996 AP pass rate lower than 1.0 (number of AP tests passed divided by number of 12th graders)

For the sixth year, Gretchen Whitney High has held onto first place among California public high schools by a significant margin. However, 1997 marks the first year Whitney slipped in its overall performance. From 1992 to 1996, Whitney had steadily raised their performance on the SAT, reaching a peak of 1356 in 1996.

This year marks the first year a Palo Alto school didn't take second. In 1992-93, Palo Alto High placed second and in 1994,95 and 96, Gunn High took the second place spot. This year, Saratoga High took second place and Lynbrook took third. Palo Alto made some controversial changes in curriculum in 1992 and it is possible that the effects are just now showing up.

Traits of the Top Eight

With the exception of Gretchen Whitney and University High, all of the top eight high schools are in the San Francisco Bay Area. Gretchen Whitney also has the distinction of being in a community that has the lowest median income in the top eight. Cerritos average 1989 income was $59,100 and the average house value was $298,000. By contrast, the average 1989 income in Saratoga was $95,600 and the average house value was $500,000. The Whitney model demonstrates that a high quality education can be achieved by relatively moderate income communities.

Top 50 California High Schools in 1996

The following table lists the top 50 California high schools in 1996. The Rank column shows the school's 95 ranking as the first number and the 96 ranking as the second. For example, San Marino High School was ninth in 95, fifth in 96. Its cumulative SAT average was 1087 in 95, and 1203 in 96. The last column shows the number of students tested and class size for 1996 only.

Schools that are highlighted increased their SAT scores by at least 100 points. In 1996, the SAT was recalibrated to make 1000 the average SAT score as opposed to 900. Any school on this list that is not highlighted, saw its composite SAT slip between 1995 and 1996.

Most improved schools on the top 50

- John Swett High moved from *240 to 32!*
- Carmel High moved up from 147 to 37.
- Santa Monica high moved up from 103 to 44.
- Ukiah High came up from 110 to 46.
- Julian moved *up from 200 to 49.*
- Granada High tied with Julian, moving from 141 to 49.

Thanks to Jim Gong at *jimg@hpoetc32.sj.hp.com* for building the table.

Rank	NAME	Verbal	Math	Combined	CA-%	# Tested/Total
1/1	WHITNEY HIGH (CERRITOS)	568/664	665/692	1233/1356	100/100	163/167
2/2	GUNN (HENRY M.) HIGH	515/597	623/636	1138/1233	92.3/90.9	233/257
3/3	PALO ALTO HIGH	528/597	609/621	1137/1218	92.2/89.8	245/262
4/4	SARATOGA HIGH	514/584	602/631	1116/1215	90.5/89.6	195/214
9/5	SAN MARINO HIGH (LA)	463/552	624/651	1087/1203	88.1/88.7	222/251
7/6	LYNBROOK HIGH	492/569	611/629	1103/1198	89.4/88.3	222/297
14/7	LOWELL HIGH (SF)	484/577	593/616	1077/1193	87.3/88.0	553/573
5/8	PIEDMONT HIGH	518/578	595/607	1113/1185	90.2/87.4	136/155
15/9	ACALANES HIGH (LAFAYETTE)	508/586	564/596	1072/1182	86.9/87.2	206/261
6/10	MONTA VISTA HIGH	483/551	628/630	1111/1181	90.1/87.1	348/427
13/11	CAMPOLINDO HIGH (MORAGA)	500/580	578/598	1078/1178	87.4/86.9	160/192
10/12	MIRAMONTE HIGH (ORINDA)	504/577	583/600	1087/1177	88.1/86.8	190/217

8/12	UNIVERSITY HIGH (IRVINE)	486/565	606/612	1092/1177	88.5/86.8	362/471
28/14	MISSION SAN JOSE (FREMONT)	463/566	575/608	1038/1174	84.1/86.6	319/411
21/15	LOS GATOS HIGH	497/573	561/594	1048/1167	85.0/86.1	244/356
11/15	LA CANADA HIGH	489/562	595/605	1084/1167	87.9/86.1	232/280
24/17	DOS PUEBLOS (SANTA BARBARA)	472/566	572/597	1044/1163	84.6/85.8	126/314
87/18	CUPERTINO HIGH	440/551	554/607	994/1158	80.6/85.4	130/305
12/19	PALOS VERDES HIGH	484/549	599/603	1083/1152	87.8/85.0	554/639
36/20	CORONA DEL MAR (NEWPORT)	471/559	557/589	1028/1148	83.3/84.7	200/254
19/21	DAVIS SENIOR HIGH	490/562	569/585	1059/1147	85.8/84.6	303/399
44/22	FOOTHILL HIGH (SANTA ANA)	465/554	553/590	1018/1144	82.5/84.4	228/372
68/23	TROY HIGH (ORANGE)	454/550	550/590	1004/1140	81.4/84.1	168/329
23/24	SUNNY HILLS HIGH (ORANGE)	462/535	584/602	1046/1137	84.8/83.8	354/442
31/25	HOMESTEAD HIGH	463/534	572/599	1035/1133	83.9/83.6	249/380
26/25	LELAND HIGH	466/546	575/587	1041/1133	84.4/83.6	275/393
16/25	LOS ALTOS HIGH	488/552	581/581	1069/1133	86.7/83.6	181/278
17/28	TORREY PINES HIGH (DEL MAR)	489/554	577/578	1066/1132	86.4/83.5	380/423
32/29	MOUNTAIN VIEW	476/541	559/590	1035/1131	83.9/83.4	181/277
29/29	LAGUNA HILLS HIGH	473/546	565/585	1038/1131	84.2/83.4	240/342
27/29	LA JOLLA SENIOR	486/564	554/567	1040/1131	84.3/83.4	281/348
240/32	SWETT (JOHN) HIGH (C.C.)	429/568	498/561	927/1129	75.2/83.3	21/105
40/33	MONTE VISTA (DANVILLE)	473/554	549/574	1022/1128	82.8/83.2	341/422
66/34	DANA HILLS HIGH	466/556	539/569	1005/1125	81.5/83.0	214/469
33/34	SAN LUIS OBISPO HIGH	485/560	550/565	1035/1125	83.9/83.0	138/268
18/34	NORTHGATE HIGH	495/554	570/571	1065/1125	86.3/83.0	267/350
147/37	CARMEL HIGH	454/562	511/560	965/1122	78.3/82.7	93/144
39/38	RIO AMERICANO HIGH	477/549	546/572	1023/1121	82.9/82.7	215/352
65/39	EL DORADO HIGH	460/555	545/565	1005/1120	81.5/82.6	128/355

34/39	ARCADIA SENIOR HIGH	440/519	591/601	1031/1120	83.6/82.6	555/790
30/41	SOUTH PASADENA SENIOR HIGH	464/530	572/587	1036/1117	84.0/82.4	229/310
22/41	REDWOOD HIGH (MARIN)	477/547	570/570	1047/1117	84.9/82.4	187/232
45/43	CALABASAS HIGH (LA)	472/550	544/566	1016/1116	82.4/82.3	237/305
103/44	SANTA MONICA HIGH	447/540	538/572	985/1112	79.9/82.0	269/587
54/45	IRVINE HIGH	444/533	565/578	1009/1111	81.8/81.9	326/524
110/46	UKIAH HIGH	457/546	526/564	983/1110	79.7/81.9	122/349
106/46	MORRO BAY HIGH	464/558	521/552	985/1110	79.9/81.9	64/196
61/46	CORONADO HIGH	464/547	541/563	1005/1110	81.5/81.9	113/159
200/49	JULIAN HIGH (SAN DIEGO)	452/546	489/563	941/1109	76.3/81.8	21/49
141/49	GRANADA HIGH (ALAMEDA)	438/540	531/569	969/1109	78.6/81.8	117/296

Task Force Urges Regents to Drop SAT Requirement

Report calls test unfair, unneeded

By Z. Byron Wolf
Contributing Writer

A task force recommended yesterday that the UC Board of Regents do away with the Standardized Achievement Test because it reduces Latino eligibility in UC admissions.

According to the Latino Eligibility Task Force, a group commissioned by the regents several years ago to chart the entry and progress of Latino students in the UC system, the SAT test is biased against minority and women students.

The task force said that by doing away with the test, the regents would increase the eligibility of Latino students by 50 percent. This would prevent what they said would be a 50 percent decline in the number of both Latino and black students at the UC campuses by the year 2005 if current admission practices remain intact.

Eugene Garcia, dean of UC Berkeley's graduate school of education, presented the task force's report to the regents. Garcia said the SAT test does not accomplish its goal of predicting how high school students will fare in their first year of college.

Instead, he said, many Latino students who are otherwise qualified to apply to the UC system do not apply because they either do not know about the test or are unable to pay for it.

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"The only thing it predicts really well is a person's socioeconomic status," Garcia said.

UC President Richard Atkinson said he was willing to consider doing away with the SAT as a requirement because, except for the act of taking the test, it does not help most students. Atkinson also said he thought the test had several disadvantages, such as its high cost and the stress it causes for students.

"It works as a psychological and financial obstacle," Atkinson said. "It becomes useful in the admission process only for the student who has done poorly in required (high school) classes."

Neither Garcia nor Atkinson recommended to the regents that the university completely disregard the SAT test in the application process. Both, however, did say that they felt that making the test optional would make the process more objective.

Acccording to Dennis Galliano, the university's vice president for student and academic services, the state of California is developing a new assessment test that is geared more toward California's public school standards.

Garcia said a test based on California's high school curriculum would better represent the abilities of Latino students intimidated by the SAT.

While some of the regents did not rule out the idea of making the SAT optional, they said they felt more consideration would have to be given to dropping the test before they would support it.

"The goal is to make sure that our students are still going to be competitive," Regent Sue Johnson said.

Regent Peter Preuss said that the he felt the UC application, rather than the SAT test, could be considered a greater hindrance to minority students, especially those whose parents do not speak English and cannot help their children fill out the complicated document.

"The SAT becomes secondary if a kid can't fill out the application and his parents don't have the ability to help him," Preuss said.

Galliano said the Board on Admissions and Relations with Schools, a faculty group with representatives from all UC undergraduate campuses, will review the task force's findings and make a recommendation to the Board of Regents in time for the regents' March meeting.

"It would have to be voted on at the March regents' meeting to influence the entering class of 1999," said Galliano, who is also the university's administrator in charge of outreach to minority and economically disabled students.

Comments? Write to opinion@dailycal.org

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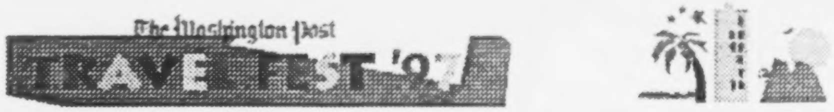
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UC May Drop SAT Entry Requirement

California System Fears Sharp Decline in Black, Latino Enrollment

By Michael A. Fletcher
Washington Post Staff Writer
Saturday, September 20, 1997; Page A03
The Washington Post

The University of California, one of the nation's largest public university systems, is considering dropping the SAT as an admission requirement in the face of dramatic evidence that its decision to eliminate race as a factor in picking students will produce steep declines in Latino and black enrollment.

The university task force charged with examining the issue recommended that the test be dropped after the group's projections showed that continued use of standardized tests would cause Hispanic enrollment to plummet as much as 70 percent at the system's flagship campuses, even as the state's Hispanic population continues to grow. Similar enrollment declines are predicted for African Americans.

The California system, with 166,000 students spread over nine campuses, became the center of a national debate over affirmative action in higher education after its board of regents two years ago voted to ban racial preferences in student admissions. That decision was reinforced last fall when California voters approved a statewide ban on government affirmative action programs.

But university officials faced renewed criticism after the first class of students admitted under those policies was far less diverse than in past years. In the current school year, the ban on racial preferences affects only students at the university system's law and professional schools. Next year, undergraduate students will be admitted to the UC system as well, based mostly on their high school grades and standardized test scores.

"How can we be effectively training the leaders of tomorrow when so many in this state are being denied access to a high-quality education?" said Eugene Garcia, dean of the University of California Berkeley School of Education and chairman of the Latino Eligibility Task Force.

Blacks and Latinos score far below the national average on the SAT. The national average on the SAT is 1016, according to the College Board, which administers the test. But the average score for Mexican Americans is 107 points lower. For African Americans, the average is 857, 159 points below the national average. Asians, meanwhile, average 1056; whites, 1052.

Yet a chorus of critics argues that the tests do not accurately predict how students will perform in college.

"We did a study of Latino students in the UC system and we found there was very little correlation between academic success and SAT scores," said Raymund Paredes, a task force member and a UCLA vice chancellor.

A survey of several hundred Latino students found virtually no correlation between SAT scores and academic success at the university, Paredes said.

Others, however, say that the test provides a uniform measure for assessing students who graduate from vastly different high schools with disparate means of evaluating students.

"The test is not biased. The test is measuring what is out there," said Gretchen W. Rigol, an executive director at the College Board. "Unfortunately, all students don't get an equal education. Not all students are taking the same rigorous academic regimen."

In Texas this year, a new law went into effect requiring students who graduate in the top 10 percent of their high school classes to be admitted to the state university of their choice. Those students will not be required to provide standardized test scores. In addition, such scores would be de-emphasized for other students applying to state universities in Texas. As in California, the use of race as a factor in university admissions was outlawed in Texas schools beginning this year.

Currently, about 15 percent of the nation's four-year schools do not require standardized tests as part of the admissions process, a number advocates say is growing.

"The test screens out a lot of black, Latino and some Asian kids who do well in school," said Robert Schaeffer, public education director for FairTest, a group that advocates against the mandatory use of the SAT.

The College Board's Rigol argues that racial gaps in SAT performance reflect differences in academic performance rather than any racial or class bias. Moreover, she said, the SAT gives colleges a way of hedging against grade inflation. Last spring, for instance, 37 percent of the 1.1 million students who took the test prior to graduating in June had high school averages of A- or above.

Although no final decision has been made, school officials said the university is weighing the use of SAT scores closely and could make a decision sometime next spring.

"The regents expressed some interest in looking at the proposal as part of a larger look at overall admissions criteria," said Terry Colvin, a spokesman for University of California President Richard Atkinson.

California Gov. Pete Wilson (R) strongly denounced the task force recommendation to drop the test, calling it a step in the wrong direction.

The task force found that eliminating the SAT would increase the pool of Latinos eligible for admission by 59 percent, far more than it would increase the overall pool of eligible students.

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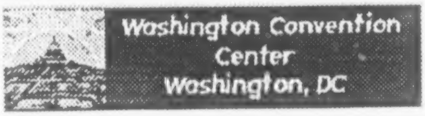
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The New York Times

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NEW YORK, WEDNESDAY, DECEMBER 18, 1991

S.A.T. Coaching Raises Scores, Report Says

By ANTHONY DePALMA

Commercial coaching courses that train students to take standardized tests can raise scores significantly, according to a new report, and give students who can afford such courses an advantage over poorer students in getting into college or receiving a scholarship.

The report by the National Center for Fair and Open Testing, a not-for-profit group in Cambridge, Mass., that also goes by the name FairTest, asserts that studies done over the last 20 years prove that coaching courses can raise a student's score by 100 points on the Scholastic Aptitude Test, a multiple choice examination with a top score of 1600 that many colleges and universities use in making admission decisions.

More than 100,000 students a year pay fees that can exceed $500 each for coaching courses, the report said.

The College Board, which administers the S.A.T. to more than 1.5 million students a year, and the Educational Testing Service, which devises the test, have consistently held that cramming and drilling do not reliably improve test scores. Officials said the strategies and shortcuts taught by the coaching companies can sometimes hurt a student's performance.

Debate Over Coaching

The report, to be issued tomorrow, reopens an old argument about the equity of standardized tests. It says coaching courses can add 100 points to a student's score on the S.A.T., whose score ranges from 400 to 1600 points.

FairTest, a longstanding critic of standardized tests, contends that since a coaching course offered by companies like The Princeton Review or Stanley H. Kaplan Educational Center costs more than $500, poor students who cannot afford such fees are put at an even greater disadvantage than already exists with the way the test is structured.

FairTest contends that the test is biased because certain questions deal with ideas and terms — like dividends, deeds and heirlooms — that students from low-income families are not likely to know.

"Coaching adds to a long list of flaws that the S.A.T. already has," said Cinthia H. Schuman, executive director of FairTest.

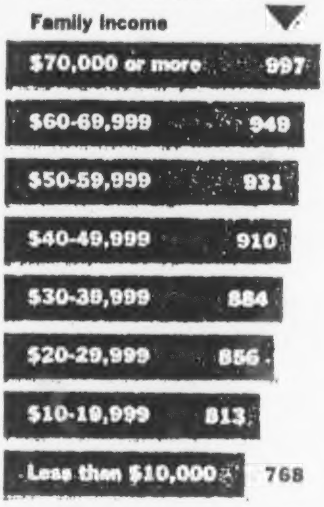
College Board officials said a rigorous academic background was the best long-term preparation for taking the test. In the short run, they encourage study of a booklet with sample questions prepared by the College Board and distributed to every test taker. Taking the test a second time also generally improves scores by about 30 to 40 points.

There is a correlation between family income and test performance, said the board's executive director of admissions and guidance services, Gretchen W. Rigol, but not because of bias in the test.

"The unfortunate reality in this country," Ms. Rigol said, "is that many students from low-income families are in schools where they are not encouraged to take rigorous academic courses or the courses are just not offesed."

More Money, Higher Scores

Average combined verbal and math S.A.T. score in 1991



Source: The College Board

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Chicago Tribune
Sunday, February 20, 1994

Standard test scores simply don't add up for high school girls

Joan Beck

Why do many more boys than girls do well enough on the Preliminary Scholastic Assessment Test to become finalists for National Merit Scholarships?

[A] Boys are smarter than girls.

[B] Girls have less aptitude for math and science.

[C] The test discriminates against girls.

[D] Boys get more encouragement from teachers so they learn more in school.

[E] Boys are better at taking tests.

[A] and [B] are false as well as politically unacceptable. There is some evidence that [D] may be true, but because girls generally get higher grades in school than boys, it is not a clearly right answer. [E] may be a factor. But [C] is the most likely answer.

At least the American Civil Liberties Union and the National Center for Fair and Open Testing insist that the PSAT discriminates against girls. They have just filed a federal civil rights complaint charging the Education Testing Service and the College Board, which develop and manage the PSAT, with gender bias.

The PSAT is taken during the junior year in high school and is used to make up the pool of students who are eligible for prestigious National Merit Scholarships, which are won disproportionately by boys.

As evidence, the two groups point out that 55 percent of the million-plus high school juniors who take the PSAT are girls. Yet 60 percent of the 15,000 students who score best and therefore become scholarship semi-finalists are boys. And 60 percent of the final winners of the scholarships—which total more than $30 million a year—are boys.

Girls also score lower than boys on the similar Scholastic Assessment Test (SAT), which is usually taken in the senior year of high school. It plays a large role in college admissions and in the final selection of Merit scholars and other award winners.

For students who started to college last fall, girls averaged a total score of 877 on the SAT, compared to 930 for boys. The difference was greatest in the math section, with boys outscoring girls 502 to 457. But even on the verbal questions, boys did an average of 8 points better than girls.

The same kind of discrepancy shows up in scores on the American College Testing Program (ACT), another college admissions test that is widely used. On a 36-point scale, boys had a composite average of 21 and girls, 20.5. The difference was greater in the math section, with males 1.2 points ahead.

To support their case, the ACLU and the FairTest group point out that girls get better grades in high school than do boys—a grade point gap that is now the biggest in five years.

Women also do better, generally, in college math courses than their math scores on the SAT would predict.

A major study published in the Harvard Educational Review in 1992 involving 47,000 students showed that among men and women who took the same college math course and got the same grade, the women had scored about 33 points lower on the math SAT than the men.

These discrepancies between test scores and grades show the failure of the testing services "to correct fundamental flaws in their tests," says the FairTest group. "Young women continue to be hurt when unfair scores are used to award scholarships or determine college admission. There is little doubt that test bias is the cause of the gender gap."

It's not just Merit scholarships that are given disproportionately to boys because of gender-biased tests, the FairTest group points out. Last fall, it charged that three out of every four winners of college scholarships given by the National Academy for Science, Space and Technology to encourage study in those fields went to boys. Awards were based on ACT math scores.

It is difficult to see obvious gender bias in the specific questions that make up the math part of the PSAT and other college admissions tests. But the FairTest group argues that "a multiple-choice format, like that on the SAT and ACT, favors males over females. Guessing, a risk males are more likely to take, is rewarded."

Efforts to teach students test-taking strategies, as many schools and private services do, haven't been enough to counter whatever it is in the tests that favor boys. Upcoming changes in the SAT aren't going to solve the problem, critics predict.

What would help is the kind of solution worked out in 1989 when charges were brought in a Manhattan federal district court that New York state's Regents Scholarship program discriminated against women. At that time, scholarships were given on the basis of SAT scores and girls won only 43 percent. After a court ruling, grades were also taken into consideration and women got 51 percent of the awards.

Women aren't demanding an affirmative action edge in complaining about gender bias in college admissions tests and scholarship awards. They just want to move away from this quick, one-dimensional look at their abilities and compete more fairly on the basis of a better assessment—including grades, class rank, essays and activities—of what they can do.

It is easier, of course, to compare students using only numbers produced by a two- or three-hour exam on a single day. But it's obviously misleading and, as the ACLU and FairTest data show, it is discriminatory.

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The Washington Post

SATURDAY, MARCH 12, 1994 A

Colman McCarthy

Outsmarting the SATs

It's torture time for high school kids. On March 19, some 1.7 million seniors and juniors will subject themselves to the fear-filled Scholastic Assessment Test, the annual brain teaser sponsored by the College Board and administered by Educational Testing Service.

This year's SAT Saturday is being promoted as offering a new and shinier product, a revised exam that attempts to blunt past criticisms of the test as biased against women and minorities and as intellectually narrow.

Planted between test-takers and test-makers is the cramming industry: companies that offer coaching courses to students who are frightened into believing that flubbing the SAT equals a doomed future of minimum wages and maximum failure. The companies, many of which charge between $500 and $700 as well as offer test-taking manuals for those who are still anxiety ridden, have credible performance records of boosting scores by 100 points or more. They make no claim for helping kids to be smart, only how to outsmart: teaching them tactics usable for the SAT and useless elsewhere.

For college-bound seniors, the spring semester has enough built-in turmoil—from sweating out college acceptances to applying for loans—without the added pressure of a test that has nothing to do with character, idealism, personal values, common sense or the fortitude not to cooperate with the SAT charade.

Students deep with those assets have the choice of nearly 200 four-year colleges that don't require SAT scores for admission. Among them are some of America's most well-regarded and academically challenging schools: Sarah Lawrence, Bowdoin, the University of Oregon, Bard, Hampshire, College of the Atlantic, Troy State in Alabama, St. John's in both Annapolis and Santa Fe.

I've visited several of these non-SAT schools. Their untested students appeared to be as sharp-witted as their companions who jumped through the SAT hoop demanded by conventional colleges. If anything, the kids at such liberal arts schools as St. John's in Maryland and College of the Atlantic in Bar Harbor, Maine, struck me as having the kind of creativity and spunk that any parent or teacher would relish. They're the kind of students who, at age 17 or 18, already had the inner resilience to break from the pack and defy the SAT hustle, a virtue worth having in a society that rewards cosmetic conformity.

Not many students taking the SAT on the 19th are likely to realize that the new exam differs little from the old, despite the claims of its creators and the name change from "Scholastic Aptitude Test" to "Scholastic Assessment Test." The National Center for Fair and Open Testing, a nonprofit in Cambridge, Mass., reports that the same types of sex and cultural biases are found in the analogies, sentence completions, reading comprehension, standard math and quantitative comparisons in the new SAT. Antonyms have been dropped. Calculators are allowed.

Officials at the Cambridge center assert that the patterns of the past aren't likely to change: "It is expected that girls will still receive lower test scores than boys even though females earn better grades in both high school and college when matched for identical course work. Students whose first language is not English will also still be at a disadvantage on tricky word problems."

At SAT-requiring colleges, I've learned that admissions directors often want it both ways. They'll assume high-minded airs and claim they place great weight on an applicant's admission essay, leadership skills and involvement in community service. But while playing down the SAT, they'll still force students to take it.

And why not? The kids are paying; get them ready for bigger bills to come. Then, too, college presidents like to boast to potential donors that the SATs of this year's freshman class are higher than last year's, which were 10 points above the year before. The campus is brimming with young geniuses. Let the competition take note.

High school students, too. They know they're being used. Wasting their winter Saturdays in high-priced prep courses has nothing to do with their educational development. If a question on the SAT verbal analogy section were to capture the process, it might be this: The SAT is to true learning what (a) Kool-Aid is to fresh orange juice, (b) video games are to Shakespeare, (c) Oliver North is to honesty.

Answer: all of the above.

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TUESDAY, MAY 14, 1996

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Founder, Sept. 15, 1982

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Today's debate: GRADING SATs

240 colleges get smart, make SATs optional

OUR VIEW **Anxiety-producing tests are overrated, overused and don't predict how well a student will do in college.**

A quest for Excellence

This fall, students applying to attend Muhlenberg College, a private liberal arts campus in Allentown, Pa., won't have to submit Scholastic Assessment Test scores.

They can, if they choose, submit a graded writing sample and participate in a personal interview instead. That's good news for students and their families who endure months of anxiety and expense preparing for the SAT and/or the American College Test.

Muhlenberg is the latest of more than 240 four-year colleges to drop the test-score requirement. With luck, it won't be the last. While the SATs can have value in measuring some students' reasoning and thinking skills, they're grossly overused.

Critics, led by FairTest, a national nonprofit advocacy group, say many promising students aren't even considered by some colleges because of low test scores.

This is happening even though a 1992 survey by the American Association of Collegiate Registrars and Admissions Officers found test scores to be a poorer indicator of achievement on campus than either grades or class rank.

Colleges using the tests cite the need for a common denominator to measure applicants from different schools. But motivations unrelated to fairness or sound evaluation exist as well. Deciding admissions by SAT score is easy. And enlisting students with high scores provides colleges a way to

Sample SAT questions

1 Gene and JoAnn each bought some Ink-O pens and an ink eraser. Gene paid $1.75 for 3 pens and 1 eraser. JoAnn paid $1.25 for 2 pens and 1 eraser. What is the price of one of the pens?
A: $0.10; B: $0.15; C: $0.25; D: $0.50; E: $0.60

2 Rachel Carson's book "Silent Spring," which described a world made lifeless by the accumulation of hazardous pesticides, — a grass-roots campaign to — the indiscriminate use of such substances.

A: catalyzed . . . propagate
B: protested . . . limit
C: conceived . . . encourage
D: inspired . . . control
E: allowed . . . recommend

Source: Educational Testing Service and College Entrance Examination Board

[illegible]

But the schools that have made the tests optional have found compensating advantages. No school that dropped the requirement has reinstated it. And while results have yet to be analyzed nationally, anecdotal evidence suggests the tests are an overrated tool.

For instance, research at Bates College in Lewiston, Maine, where tests became optional in 1990, found that students who submitted test scores earned grade-point averages virtually identical to those who didn't. The difference was a meaningless five-hundredths of a point.

At Lafayette College in Easton, Pa., where SATs became optional three years ago, administrators found that the 15% of freshmen who didn't submit scores scored a tenth of a point lower GPA — also insignificant.

That's reason for parents and students to wonder if all the effort devoted to SATs is well spent. It's prompted 240 colleges to change their ways. What about the test?

College admissions policies that don't consider the whole student fail the test.

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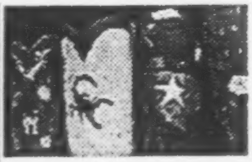

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Test foes praise new admissions rule

Guaranteed spot for top 10% of class intended to boost college diversity

09/29/97

Associated Press

AUSTIN - Moves to de-emphasize test scores in Texas college admissions are drawing praise from opponents of standardized testing.

Beginning in fall 1998, students in the top 10 percent of their high school classes will automatically be eligible for admission to four-year public universities, regardless of their test scores.

The move is a try at preserving racial diversity in public universities after a court decision banned use of affirmative action in admissions decisions.

"People who believe that test scores alone are merit are living in a different world," said Robert Schaeffer of FairTest, a watchdog group that applauds the change.

A Higher Education Coordinating Board committee had recommended in January that standardized tests not be used as the main screener in admissions decisions.

"Use of standardized tests unduly limits admissions," the committee report said. "It also has a chilling effect on the motivations and aspirations of underserved populations."

In Texas, minority and low-income students' performance on standardized tests has improved slowly in recent years. White students' performance also has improved, maintaining a gap at both the public school and college levels.

Twenty-six percent of black fourth-graders passed all sections of the Texas Assessment of Academic Skills in 1992-93. Five years later, in 1996-97, 53 percent passed. But white fourth-graders' passing rate also increased from 61 percent to 81 percent. Consequently, a gap of nearly 30 percentage points remains.

A similar gap shows up in scores on the American College Test and the SAT, which most colleges and universities use to at least some extent in admissions decisions.

"Kids are much more than their test scores," Mr. Schaeffer said. "If you weight tests heavily, you get kids who test well."

To graduate from Texas high schools, students must pass the TAAS exit test.

Educators say there are various reasons for the test-score gap: inequitable or inadequate school financing, language differences, poverty and family background.

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SATs are failing some colleges' test

Nearly 300 schools look beyond scores

Thursday, Oct. 9, 1997

By ELSA C. ARNETT, Washington Bureau

WASHINGTON — An important exam that a million college-bound students will take next week contains a new section aimed at boosting girls' scores.

But even as test-preparers adjust the Preliminary SAT in response to criticism that it favored boys, the changes aren't happening fast enough for a growing number of colleges and universities.

Nearly 300 schools — about 10 percent of institutions nationwide — have begun ignoring test scores as they try to increase diversity and counteract rollbacks in affirmative action. Most of South Carolina's private and public colleges still use the SAT as a factor in considering admission.

The schools throughout the nation throwing out SAT scores are selecting students on the basis of grades, essays, family income, community activities and personal interviews.

In Texas, for example, after last year's U.S. Circuit Court ruling banning race-based admissions, the Legislature passed a law allowing the state's universities to disregard college admissions tests. Under the law, admission is guaranteed next year to students with grade-point averages in the top 10 percent from each of the state's public high schools.

"There is no substitute for taking race and ethnicity into account, but I think we did the best we could to try to reach the number of minority students that would constitute a reflection of the state population," said Jerry Gaston, vice president for administration at Texas A&M University, who served as chairman of the commission that drafted those recommendations.

But opponents and advocates of gender- and race-based admissions are finding fault with the new, often makeshift, substitutes for affirmative action.

Some argue that standardized exams are the only reliable measure of student achievement because high-school curricula vary greatly among schools, and grades are often inflated. Ignoring these tests, they say, will only undermine the quality of schools and students.

"Standardized tests help schools fairly judge students because they know they are all taking the same exam," said Jennifer Nelson, executive director of the American Civil Rights Institute, a Sacramento, Calif.-based group that opposes racial preferences.

"If you take away that objective criteria and determine admissions from a whole set of subjective factors, you take away the incentive for students to work hard, study hard and try to get good grades," Nelson said.

Even those who favor finding ways to promote minority enrollment say that tinkering with admissions criteria may end up hurting those they are intended to help.

"When you adjust the tests or discount the scores, you may be obscuring very real differences in achievement," said Jay Heubert, assistant professor of education at Harvard's Graduate School of Education. "These tests may be revealing inequities in our educational system that we should pay attention to and try to address, not ignore."

When standardized tests like the SAT first became widely used after the influx of veterans returning from World War II, mainly affluent white men took them.

Since then, many more women and minorities have sought higher education. Test questions involving polo matches or investments have since been adjusted to eliminate material that would lead to overt cultural or gender biases. But critics still say the tests' design favors white males and puts women, minorities and low-income students at a disadvantage.

The timed, multiple-choice tests are best suited for boys' personalities, educators say, because they tend to approach the test like a game and are more confident taking guesses. Girls are generally reluctant to guess and spend more time trying to figure out the right answers, these educators say.

Meanwhile, those with first languages other than English can get tripped up on the verbal questions and the math section's word problems. The tests also reinforce the education deficiencies many minorities already face.

Critics of standardized tests point to scores that consistently show a performance gap among genders and races. For example, males scored an average of 40 points higher than females on the 1997 SAT.

Among racial and ethnic groups, Asians had the highest average scores, 1056 out of a possible 1600 points for the verbal and math sections combined. Whites followed closely, at 1052. Then came American Indians, 950, Hispanics, 934, Mexican Americans, 909, Puerto Ricans, 901, and blacks, 857.

To compensate for these alleged shortcomings, many colleges have not held all students to the same test-score requirements.

At the University of California at Berkeley in 1995, for instance, Asian-Americans had an average combined SAT score of 1300, followed by whites, who averaged 1290. Hispanics averaged 1040, and blacks averaged 960.

But with court rulings and laws passed in California and Texas requiring schools to hold all students to the same standards, and with legal challenges against race-based preferences in many states, admissions offices are trying to find ways to recruit qualified minorities without using race, ethnicity or gender.

Tailoring standardized tests to help women and minorities is one approach.

The changes in the PSAT stemmed from a civil-rights action filed in 1994 by FairTest, a non-profit education advocacy group in Cambridge, Mass., that opposes standardized tests.

PSAT scores, which also test verbal and math skills, are used to determine National Merit Scholarship semifinalists who are eligible for the $25 million in awards given to 8,000 winners. FairTest charged that the PSAT was flawed because girls accounted for 40 percent of the semifinalists, even though they made up 56 percent of the test takers.

After negotiations that lasted 2½ years, the test preparers, Educational Testing Service, agreed to add the new section, which include 39 grammar questions. That section is expected to even out the scores because girls usually outperform boys on grammar questions.

"These changes will end up substantially narrowing the gender gap and will give girls millions of dollars more in scholarships that they have earned," said Bob Schaeffer, public-education director for FairTest.

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STANDARDIZED TESTS FOR COLLEGE UNDER FIRE IN DIVERSITY DEBATE

By Karen Brandon, Tribune Staff Writer

Web-posted Sunday, September 28, 1997; 7:04 a.m. CDT

Dateline: SAN DIEGO

A new law in Texas guarantees admission to the state's public universities to high school graduates in the top 10 percent of their class; no SAT or ACT is required.

A proposal before the University of California system would eliminate the SAT from admissions criteria.

With new policies banning racial preferences in both states, the use of test scores faces renewed scrutiny by educators and policymakers seeking ways to help the rapidly growing minority populations gain admission to the top tiers of public education.

At the heart of the debate are questions about the value of standardized tests.

"Let's look at the definition of what **constitutes** merit," said Charles Rooney of FairTest, the Cambridge, Mass.-based organization that is the chief critic of standardized tests. "It's pretty clear that test scores do not equal merit," he said.

Such tests are closely tied to the affirmative action question because of the racial, sex and class disparities that often emerge in the scores.

For instance, blacks, Hispanics, women and students from low-income families generally score lower on the SAT than whites, Asians, males and students from high-income families.

The College Board, the non-profit organization of 3,200 schools and educational organizations that sponsors the SAT, says murmurs to eliminate it are wrong.

"The recommendation is like breaking the thermometer because you don't like the temperature," the College Board said.

In California the proposal was made this month by a task force convened five years ago to find ways to bring more Hispanic students into the university system. Four percent of all Hispanics who graduate from the state's high schools meet the system's admission standards.

Demographic trends in California, the nation's most populous and diverse state, suggest that 500,000 additional students will seek entry to public colleges by 2005, with an increasing percentage of them minority students.

In a report released last week, Rand, a think-tank based in Santa Monica, Calif., said the situation poses "a grave danger to society."

"The college degree has replaced the high school diploma as the entry card into productive employment," the report concluded.

"If this degree is increasingly out of reach for large segments of the California populations, then a revolution in education is essential to avert increasing social unrest."

The recommendation to eliminate the SAT would increase the number of students of all backgrounds eligible for admission to the California system. At present the state guarantees admission to the top 12 percent of high school seniors, but without the SAT up to 18 percent of graduating seniors would be eligible, said Carla Ferri, director of undergraduate admissions for the University of California system.

Raymund Paredes, associate vice chancellor for academic development at UCLA and a member of the Latino Eligibility Task Force, said the group settled on the recommendation after finding little correlation between Hispanic students' score on the SAT and their success in college.

"How well are we measuring merit? My answer is, I don't think we do it nearly as well as we could," Paredes said.

He said the biggest concern was not so much possible test bias as the inability of the test to forecast accurately how Hispanic students would fare in college.

The College Board argues that the way to help Latinos and all students better prepare for college is to improve elementary, middle and high schools and to correct the socioeconomic conditions that affect children's readiness for school.

Others contend that dropping the SAT requirement would be tantamount to lowering admissions standards.

"It seems to me that the recommendation is driven by the desire to simply increase the number of Latinos or to simply increase diversity," said Ward Connerly, the University of California regent who championed the university's new policy against racial preferences. "I believe our admissions criteria should always be driven by the desire to increase quality."

He and others said they believed that eliminating the test would only lead to grade inflation at high schools.

The broader question raised by the task force recommendation and by other critics of the national test is whether the SAT and other standardized tests really do provide a benchmark.

A growing number of colleges and universities have chosen to make the test **optional**. The number of such schools has risen from 189 to 284 in the last three years, according to FairTest.

The ACT (formerly known as the American College Test) is used primarily by schools in the Midwest.

The SAT, which is taken by more students, has been more widely studied. Though no one argues that certain minority groups receive lower scores, no one study has been able to pinpoint why.

Researchers speculate that the timed nature of the test hurts students who are not native English speakers, presumably because they need longer to read the verbal section and the math section, which contains word problems.

All the same, the results of the tests often defy explanation. For instance, in California, Asians in the lowest income group scored higher than blacks in the highest income category.

THE RECORDER November 19, 1997, Wednesday SECTION: COMMENT; PG. 4

HEADLINE: **THE RACE TEST**

BY: Dirk Olin

Between the nerd with the pocket protector and the kid who forgot to bring a No. 2 pencil, I've never doubted that standardized tests carry predictive value. But I've also always harbored the belief that admissions offices accorded the things too much weight.

A balanced perspective, unfortunately, is precisely what's missing in the current hullabaloo over standardized testing.

The context for all of this is the end of affirmative action as we have known it. The University of California in 1995 voted to ban racial preferences in admissions, and voters passed Proposition 209 to stop governmental use of such preferences in hiring and contracting. Having seen minority enrollment at UC-Berkeley and its Boalt Hall School of Law begin to plummet, defenders of racial-preference systems are becoming SAT bashers.

Last week, the group that sets admissions criteria for the UC system began reviewing proposals to drop the SAT altogether. This came on the heels of a September meeting of the UC Regents, where a university task force on Latino admissions eligibility proposed ending SAT requirements for applicants. Similarly, lamenting the drastic decline in enrollment of blacks and Latinos at Boalt Hall, American Bar Association president Jerome Shestack has called for a de-emphasis of LSAT scores as a criterion for admission to law schools.

Because blacks, Latinos and poor kids score demonstrably worse on such tests than their white and Asian counterparts, the critics have reckoned the exams carry an unfair bias.

Well, our society is doubtless still unfair and still biased. But beating the messenger -- however standardized the message -- is no solution. Ranking students is precisely what standardized testing is all about. Standards are made to be met -- and missed. That's what makes them useful. They help a distant admissions officer better differentiate among faceless applicants.

'C' STUDENTS GET RICH

Defenders of the tests point to pretty strong evidence that test scores, combined with grade histories, accurately predict later school performance. Something tautological underlies all this, of course. If 17-year-olds have performed well in class and on standardized tests, they'll be likely to perform well in class and on standardized tests in the future.

But even the tautology falls short. Grades and test scores help predict grades and test scores, but the academy must contemplate more than that. Remember the old law school saw: The "A" students become professors, the "B" students become judges, and the "C" students make all the money.

Yet even if admissions officers accord test scores too much weight, they're clearly reasonable tools. The deep problem here is not that such tests reveal racial disparity, but that such disparity exists in the first place.

The younger the student population being tested, the more equal the performances are across racial lines. What clearly happens is that something depresses scholastic achievement by many blacks and Latinos as the years go by. No amount of textual deconstruction has yet persuaded that cultural bias in the tests is as deleterious as differences in school quality or parenting priorities.

That's what makes proposals to replace race with geography the most intriguing response yet to the end of the old affirmative action era. In the case of the UC system, the idea is to admit the cream of the crop -- say, the top 10 percent of graduates -- from every public school in the state. This is neat. It has the virtue of facial race-neutrality. And it behaves like affirmative action only to the extent that our school systems mirror societal segregation at large.

SCORING AMBITION

Detractors will still claim this somehow lowers the overall quality of higher education. I doubt it.

Yes, some base line of SAT performance would be useful as a red flag. And, yes, geographical preferences would doubtless thrust some underprepared students into the UC system. But most of them would be kids who had demonstrated ambition -- an ability to excel at some academic level whatever their standardized records. There'd be a new incentive system built into some of our worst schools. Some students would now see new motive to strive. And some education officials who have trumpeted their affirmative action records while effectively writing off inner city schools would now have reason to focus on problem spots.

In the end, test defenders need to acknowledge that such rigidly standardized forms can't hope to parse the many kinds of intelligence. Opponents must acknowledge that the disparities scores reveal can't be wished away. And everyone should spend less time talking about such late-stage filters and more time putting extra time, money, creativity and hard work into the elementary school systems. That's where all actions -- affirmative and otherwise -- will have the greatest effect.

Meantime, a system of geographic outreach might reward the relativity of performance, while acknowledging the reality of pigment. Call it meritorious preference.

THE SAN FRANCISCO CHRONICLE, November 11, 1997 Section: News; Pg. A1

HEADLINE: **WORTH OF SAT EXAM QUESTIONED RECENT ATTACKS ON AFFIRMATIVE ACTION FUEL NEW SCRUTINY**

BY: Pamela Burdman, Chronicle Staff Writer

On a recent Saturday, a few hundred thousand 16- and 17- year-olds dragged themselves out of bed and trudged off to school carrying No. 2 pencils -- and the knowledge that the next three hours would help chart their futures.

In school gymnasiums and auditoriums around the country, they took the Scholastic Assessment Test, filling in row after row of neat little circles so that top colleges and universities could figure out who gets in next year.

But besides the usual mix of aspiration and anxiety, students in California headed for the exams this year during an intense debate over the very worth of the tests. At the heart of the argument lies the fact that men outscore women, while Asian Americans and whites do better than African Americans and Latinos.

Although criticisms of the SAT are hardly new, they are getting louder now that university officials in California and Texas are dismantling affirmative action. Other states are considering similar moves, making the use of standardized admission tests a national concern.

''In a perverse way, the attack on affirmative action has accelerated the movement to make test scores optional,'' said Robert Schaeffer, education director of FairTest, a Massachusetts group that opposes the SAT requirement.

While some advocates of merit-based admissions believe tests are the best measure of a student's ability, others suspect differences in test performance say more about the tests than about the students.

Test critics have been encouraged by some recent developments:

* A University of California task force seeking to expand opportunities at UC for Latino students recently recommended scrapping the SAT requirement, an idea UC President Richard C. Atkinson called ''intriguing.''

* This fall, the American Bar Association began studying new ways to use the Law School Admissions Test. The ABA president blamed the UC regents' color-blind admissions policy for drastic declines in black and Latino enrollment at Berkeley's Boalt Hall.

* The University of Texas, where race-conscious admissions were ended by a court decision, now automatically admits any student who graduates in the top 10 percent of his or her high school class -- regardless of SAT scores.

Admissions officers at public schools like UC must do something to cope with an overwhelming number of applications for precious few openings at the top-ranked institutions. Last year, of the 27,000 students who applied to UC-Berkeley, 12,000 had 4.0 GPAs -- almost enough to fill three freshman classes.

Most educators say they see no way to avoid using some kind of benchmark for sorting students who take different classes at different high schools.

High school grades are the best predictors of freshman grades, experts say, but they do a slightly better job when combined with the SAT.

''If the SAT's going to be used, it should be used as one item among many,'' said Samuel Lucas, a Berkeley sociologist who has researched the tests.

TEST PREPARATION CLASSES

Many students don't believe schools will heed that advice. That's why some are willing to spend hundreds of dollars on programs to prepare for the SAT.

''The SAT really does determine most of your future,'' said Danny Stalder, 18, of Berkeley, after finishing her last test prep session at Kaplan Educational Centers. ''Your high school diploma doesn't get you anywhere.''

In the SAT's early years, some educators hoped it would be an objective standard that would open the doors of academe to people who had been shut out. Those hopes seem naive today.

''I don't know if there's a simple way to make these tests objectively unbiased for every group,'' said Stanford social psychologist Claude Steele. ''Affirmative action compensated for some of the biases in the testing system.''

On average, black and Latino students get lower scores than whites and Asians, even at higher income levels. In other countries, score differences on standardized tests break down along different lines, but typically ''low-status'' groups have lower scores: ethnic Koreans in Japan and Catholics in Northern Ireland, according to six UC Berkeley sociologists in the 1996 book ''Inequality by Design.''

A QUESTIONABLE TOOL?

The question is, are the tests to blame?

Defenders of the SAT say score differences simply reflect the fact that many minority students attend poor high schools, take less rigorous classes, and have parents who didn't attend college -- or, in some cases, don't speak English.

''You shouldn't smash the thermometer just because it's showing there's a problem,'' said Gretchen Rigol of the College Board, the group that administers the SAT. ''It ought to be a call to action.''

As for women, they note that women tend to take fewer math and science classes in high school -- hence lower scores on the math section of the SAT.

Critics say the tests only perpetuate inequality, serving as gate- keepers to professional schools and top colleges like UC Berkeley.

''We're doing some high-stakes decision-making -- who's eligible to come to the university -- using a tool that's quite questionable,'' said Eugene Garcia, dean of Berkeley's school of education and head of the Latino eligibility study.

'RACIAL JEOPARDY'

Societal stereotypes may even accentuate score differences. According to Steele, head of Stanford's psychology department, belonging to a stigmatized group can hamper the performance of even the best educated and most ambitious students, placing them in what he calls ''racial jeopardy.''

Steele found that black Stanford students tested about as well as white Stanford students when they were told they were simply helping researchers try out a new exam.

But when a similar group of students were told they would be judged on their scores, the black students underperformed. Steele found a similar situation for women on math exams.

Rather than a self-fulfilling prophecy, Steele said, a stereotype creates added anxiety for the very student who is trying to disprove them.

''The bias against these groups is in the situation,'' he said.

FairTest and other critics go farther, claiming the test questions themselves are biased, since some items seem to be much easier for men than for women, or for whites than for minorities.

Educators don't always know why. For example, women and minorities do better on questions containing words with Latin and Greek roots, while men find questions with Anglo-Saxon origins easier.

Test-givers insist they go to great pains to review questions. Any that seem too seriously biased are thrown out.

''If we wanted women to do better than men, we would have a verbal section with more reading. We can manipulate it somewhat,'' said Sydell Carlton, a senior examiner with the Educational Testing Service, designers of the SAT.

The same is true in math. ''We have an inherent tension here,'' she said. ''Math associations are telling us they don't want stuff on tests that are straightforward math, they want applied math. But we know word problems disrupt female performance, they disrupt Asian performance.''

In the 1980s, Education Testing Service researchers experimenting with how to minimize black/ white differences in test scores created an exam on which African Americans outscored whites.

''You can manipulate a test to do anything,'' contends Phyllis Rosser, author of a landmark study on gender bias in the SAT.

''The SAT is supposed to predict how well you're going to do in college. However, women get better grades in high school and equal or better grades in college. I've always felt it was consumer fraud.''

GROWING SKEPTICISM

Since the 1980s, when test preparation outfits like the one founded by Stanley Kaplan gained popularity, more and more students realized they could improve their scores with coaching -- if they could afford it.

Since then, students and their parents have been more skeptical about the tests, wondering if the SAT measures anything more than a student's ability to pencil in the right circles on a multiple-choice test.

Two nights before taking the SAT, Stadler of Berkeley was full of skepticism. ''I don't believe in standardized tests,'' she said. ''For a lot of different reasons, people are going to do badly on it.''

Still, with her future is at stake, she spent 36 hours and $ 695 for the Kaplan course. ''At this point, there's no alternative,'' she said.

Students who took the SAT this month await envelopes from Educational Testing Service knowing that their futures may ride on the numbers inside.

Though UC isn't likely to eliminate the SAT anytime soon, most campuses in the system are broadening their selection criteria in ways that could lessen the blow (or the boost) of the test.

Berkeley officials, for example, will consider the difficulty of a student's course load in the context of what courses were available at the student's particular high school. They are also looking for other ways to identify potential, such as special projects, participation in rigorous college-prep programs, or dramatic improvement in a student's grades.

To test critics like Jay Rosner of the Princeton Review Foundation, the less emphasis on the SAT, the better.

''I liken the standardized test to free-throw shooting in basketball,'' said Rosner, who runs test coaching programs for minority students. ''Good free-throw shooters tend to be good basketball players and vice versa, but there are so many exceptions to that rule that you have to question the connection.''

CHART (1):

THE TROUBLE WITH TESTS

Designers of college admission tests try to make sure questions are free of bias. But it's not always easy to achieve that goal. Here are examples of questions that the Educational Testing Service has eliminated from the SAT and other tests because the student's race or gender seemed to have too much influence over whether the student picked the right answer::

strawberry: red
(a) peach: ripe
(b) leather: brown
(c) grass: green
(d) orange: round
(e) lemon: yellow (x)

(Latin American cuisine favors limes over lemons. Researchers suspect many Latinos miss this question because they are more familiar with limes):

obliterate:
(a) pacify
(b) restore (x)
(c) deflate
(d) confuse
(e) notice

(Researchers have discovered that, on average, women don't do as well as men on questions involving war and violence):

renege:
(a) dispute
(b) acquire
(c) fulfill (x)
(d) terminate
(e) relent

(Researchers speculate that African Americans may use the term 'renege' more frequently than whites because of a pervasive belief that the United States has reneged on its promises to black Americans):

infidelity:
(a) approval
(b) creativity
(c) exorbitance
(d) loyalty (x)
(e) flightiness

(Researchers say that questions involving the emotions tend to be easier for women. As for Latinos, they point to the fact that ''infidelity'' has cognates in Spanish):

If a, b, c, and e are positive and if $ax = b$ and $cy = e$, then $x/y =$
(a) a/c
(b) b/e
(c) ae/bc
(d) bc/ae (x)
(e) ab/ce

(Researchers say women and Asian Americans have a much easier time on certain algebra and computation questions, while men often perform better on word problems)

Source: Educational Testing Service

(x) The asterisk indicates the correct answer.

CHART (2):

SCORING THE SAT

Class of 1997 Average SAT scores.

VERBAL SKILLS

	Male	Female
African American	431	436
Asian American	498	494
Latino	456	448
White	528	524

MATH SKILLS

	Male	Female
African American	433	416
Asian American	578	543
Latino	478	444
White	545	510

Source: College Board

THE ORANGE COUNTY REGISTER October 12, 1997 Sunday

SECTION: NEWS; Pg. A01

HEADLINE: **DEBATE RAGES OVER VALUE OF THE SAT 'YARDSTICK'; COLLEGES: UC SCHOOLS CONSIDER MAKING THE ADMISSION TEST OPTIONAL.**

BY: KIMBERLY KINDY

One low test score dashed Santa Ana High School alumna Sasha White's dreams of studying at UC Berkeley.

She took the SAT twice and, out of 1,600 possible points, her best score was a 1,030 _ high enough to be eligible for the University of California, but too low to compete for a coveted spot at Berkeley.

The score made her feel stupid, she said, so she didn't apply to any UC campus.

"Your SAT score, it's not a basis for measuring intelligence," said White, who is now on the honor roll at private Allegheny College in Meadville, Pa.

"I don't think it's a good indication at all of how you'll do in college, but it's given a lot of weight."

The same argument has been made to the UC Regents, and next month an 11-member faculty board will consider several proposals for making SAT scores optional on UC applications.

The lobbying effort against the SAT was triggered in part by the UC Regents' decision to ban consideration of race and gender in admissions, which began this year in graduate programs and will include undergraduate programs next year. Critics have long considered the SAT "culturally biased" _ using questions that white students have an easier time answering than minorities.

" Admission counselors knew before that a poor black kid was going to score 300 points lower than a rich white kid," said Paul Kanarek, who owns an Orange County company that charges $ 700 for SAT preparation workshops. "They used affirmative action to level the playing field. That tool has been taken from them."

The University of California is not alone in questioning the SAT. Nearly 290 colleges and universities throughout the nation have made it optional.

Dozens of conflicting studies, dating to the 1960s, have questioned the validity of the test, and concern is growing that it is being used arbitrarily to speed up admissions.

About 700 California highschools send their students to the UC system every year. Each has a different grading system, and each year more students earn perfect 4.0 grade point averages.

The College Board, a private company that administers the SAT, taken by 1.1 million students a year, says that without the multiple-choice exam there would be no common yardstick to measure students' academic records.

"It ensures some equity. It's objective," said Rafael Magallan, director of the College Board's office in California. "We question those who argue against it because they aren't scoring high. They want to break the thermometer because (they) don't like the temperature. "

PREDICTING SUCCESS

UCI Vice Chancellor Manuel Gomez who served on a UC task force that analyzed studies of the SAT is fighting to make the test optional because he doesn't believe it does a good job of predicting student success.

The UC admissions office is conducting a study, due in November, to determine how SAT scores have helped predict the success of its students. No current studies have shown that the SAT can help predict grades beyond the first year or predict graduation rates, Gomez said.

Besides, he says, it scares away promising students such as White.

White is a Latina who speaks Spanish and English. She had a 3.5 grade point average in high school, took the most rigorous coursework available, was a campus leader, and helped her single mother raise her younger brother.

"That's a classic profile of a student who has great strength and merit and should have been considered for admission to the university," Gomez said.

White has watched fellow classmates who scored 1,400 and higher on the SATs fail out of her college while she has soared.

"I was intimidated by them when I first got here. I thought I couldn't compete against someone with a 1,500 SAT score," she said.

Such stories have fueled the nationwide movement to limit the power of the SAT in admissions.

Like apostles spreading the word of their new-found faith, college administrators who have made the SAT optional have appeared on ABC's "Good Morning America" and made appearances before the UC Regents to talk about a better way of judging applicants.

OPTIONAL SATS

Bates Collegein Maine became one of the first, in 1984, to begin making SATs optional.

"We believed that SAT scores were probably scaring off some highly talented kids who had proven themselves to everyone but the testing agencies. We were right," said William Hiss, a vice president who oversees admissions at Bates, a small liberal arts college in Maine.

Applications shot up within the first few years, from 2,350 to 7,030 annually. About one-third of the school's incoming students each year do not submit SAT scores, but they have maintained the same 84 percent graduation rate as those who do.

Bates has moved toward an admissions process it calls "wholistic," which is also lengthy and labor-intensive.

Applicants must write four essays and submit three letters of recommendation from teachers or community leaders. They are also asked to submit videotapes, resumes or portfolios to spotlight their special talents.

But could the UC system convert to a similar system?

"Don't send me videotapes! " said UCI's admissions director Sue

Wilbur. "I would love to read four essays or look at a video, but there isn't time. "

UCI received 17,200 applications for the 2,900 available slots for freshmen last year.

SELECTING FRESHMAN CLASS

Students were judged by an expanded list of academic criteria, which doubled the time counselors needed to spend to select a freshman class.

Before that, UCI and some other UC campuses used a rigid formula that ranked applicants by taking their grade point average, multiplying it by 1,000 and then adding scores for SAT I and SAT II, which test knowledge in areas such as social science and foreign language.

SAT and SAT II scores remain mandatory and are seriously considered, but UCI admissions staff now look at nearly a dozen academic records _ such as the number of available honors classes the student took and how heavy the student's senior course load was. The change forced UCI to nearly double its admissions staff, from 12 to 23.

Making the SAT optional could force more costly expansions.

"They need an equalizer, but their equalizer is inherently flawed. I have proven that by showing the test is absolutely coachable," said Kanarek, who owns the Princeton Review in Orange County. Thecompany charges $ 700 per student for SAT preparation workshops.

Kanarek makes his living off the SAT, but he's backing a plan proposed by two UC professors to automatically admit the top 6 percent of each high school's graduating class.

"This is a fairer system," Kanarek said. "It acknowledges that a University High School fish is very different from a Santa Ana High School fish. This system takes the best fish from each pond. "

UCLA professor Rudolfo Alvarez is one of the two professors making the proposal.

One of his concerns is that the SAT is coachable. He's also concerned about the high fee for SATworkshops, because it means students like White can't afford the help that could raise their scores several hundred points.

At Santa Ana High, for example, no seniors this year have taken the Princeton Review course. At University High in Irvine, more than 200 have taken it.

STRAIGHT-A STUDENTS

The College Board has offered free SAT prep workshops and waived test fees for low-income students.

The company agrees that not all high schools take the College Board up on these offers and that some students suffer, but it argues against proposals such as Alvarez's because of the problem of grade inflation.

"A straight-A student from one high school is probably not the same as a straight-A student from another high school," Magallan said.

But Alvarez said grade inflation is irrelevant. The ability to compete with peers is what's important.

"It doesn't matter what the quality of the school is," Alvarez said. "They've demonstrated their ability to rise above 94 percent of their peers. Someone who rose against drugs and poverty at a low-performing school to get to the top 6 percent _ that's exactly the kind of person we should have at the university. "
Alvarez estimates that just 5,000 students would enter the UC system through this procedure; the other 20,000 spots could be doled out in a traditional manner.

The top 12.5 percent of high school graduates across the state are eligible for UC schools, but not all get in. The California Postsecondary Education Commission is in the middle of a study, due next month, that will determine how many of these top graduates are being accepted.

The chairman of the UC admissions review board, UC Riverside professor Keith Widaman, said the 11-person panel will take up all the proposals for the first time next month.

He said requests from Alvarez and the UC Latino Eligibility Task

Force to eliminate the SAT are both serious proposals, but he was uncertain whether any changes could be made. He predicted the fastest timeline for making the SAT optional would be for the school year 1999-2000.

He also predicted a long, contentious battle.

"I'm not sure where the rocks and hard places are, but we are right in the middle of them," Alvarez said. "We arecharged with maintaining diversity and with getting rid of affirmative action considerations. It's tough."

THE BOSTON GLOBE, September 29, 1997 SECTION: OP-ED; Pg. A15

HEADLINE: THE SAT SOLUTION: NONE OF THE ABOVE

BY: Joanne V. Creighton

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A recommendation that the University of California system eliminate the use of SAT scores in order to increase enrollment of minority students has generated vigorous discussion. Officials at the college are debating the merits of the proposal issued recently and may look to learn from the experience of the nearly 300 institutions - mostly small liberal arts colleges - that have dropped consideration of SATs.

Positions are being staked out quickly in this latest debate stemming from the passage of Proposition 209 banning affirmative action. The Latino Eligibility Task Force, which issued the proposal, has said that continued use of the SATs could lead to a 70 percent decline in the number of Hispanic students in California's most selective institutions. The faculty chair of the board that sets admission criteria has been quoted as saying that SATs are the only reliable factor in making admissions decisions.

As president of a highly selective small liberal arts college that considers SATs in admissions decisions, I believe both sides have it wrong. The answer does not lie in eliminating SATs from consideration, thus denying admissions officials potentially useful information about an applicant, nor does it lie in asking admissions officials to rely on one imperfect instrument, thus denying them the flexibility to judge an applicant's full profile and record of academic and extracurricular achievement. An applicant must be judged in his or her entirety by thoroughly reviewing high school transcripts, essays, teacher recommendations, and yes, test scores, to develop a complete picture of the applicant's academic and personal strengths and chances for success.

Admissions officers should make judgments based on references, essays, and personal facts that reveal strengths, such as commitment to excellence, motivation, and idealism. They should seek to evaluate students on what they have done with the opportunities afforded them, because this is the best predictor of success. They must work to understand the schools from which applicants are coming and develop a sense of the differences among those schools.

This process is more work and is messier than doing it all "by the numbers," but it is the best and fairest way to select students.

The search for academic excellence is certainly about grades and test scores, but it is about much more than that. It is often the case that an applicant's struggle against racial insensitivity or discrimination speaks legions to her strength of character and therefore to her chance of success in a challenging college environment. The same is true for any number of academic or personal issues or obstacles that face young people. The working-class applicant who can claim few extracurricular activities because she has to hold a job after school must be judged in context - not penalized for being responsible.

Similarly, a student should not be rejected because she has not taken advanced-placement courses if her high school does not offer any. Nor should a student benefit from attending a school in which teachers are notoriously lax graders. And test scores, which correlate highly with income, should not be viewed as the only predictor - or even a primary one - of success in college.

University of Pennsylvania law professor Lani Guinier has commented that the unexpected legacy of Cheryl Hopwood - the white woman who successfully challenged the University of Texas Law School's affirmative action plan last year in federal court - may be that her case finally exposed that many academic programs rely far too heavily on test scores in making admissions decisions. Guinier cites research finding that the "the LSAT is only slightly better than random selection at predicting law school achievements for all students" and notes that "upper-income applicants, most of whom are white, tend to score highest on the LSAT." Research on other standardized tests, including the SAT, has produced similar conclusions.

Given the figures, it is crazy to rely too heavily on standardized tests in the college admissions process. The country should be especially wary of an emphasis that produces skewed racial results and acts as a sort of affirmative action for whites: The small number of African-American students enrolled in this fall's entering class at the University of Texas Law School should serve as a dire warning.

The answer, however, is not to eliminate test scores from consideration or adopt some grade-based formula. A college education is more important to economic success in this country than ever before, and the consequences of different approaches to admissions decisions are signficant and lasting.

Institutions of higher education should resist easy answers, formulas, or overreliance on flawed tests, in making these decisions. The young people of this country deserve more consideration than that.

CHICAGO TRIBUNE, September 28, 1997 SECTION: NEWS; Pg. 6; ZONE: C

HEADLINE: **STANDARDIZED TESTS FOR COLLEGE UNDER FIRE IN DIVERSITY DEBATE**

BY: Karen Brandon, Tribune Staff Writer.

A new law in Texas guarantees admission to the state's public universities to high school graduates in the top 10 percent of their class; no SAT or ACT is required.

A proposal before the University of California system would eliminate the SAT from admissions criteria.

With new policies banning racial preferences in both states, the use of test scores faces renewed scrutiny by educators and policymakers seeking ways to help the rapidly growing minority populations gain admission to the top tiers of public education.

At the heart of the debate are questions about the value of standardized tests.

"Let's look at the definition of what constitutes merit," said Charles Rooney of FairTest, the Cambridge, Mass.-based organization that is the chief critic of standardized tests. "It's pretty clear that test scores do not equal merit," he said.

Such tests are closely tied to the affirmative action question because of the racial, sex and class disparities that often emerge in the scores.

For instance, blacks, Hispanics, women and students from low-income families generally score lower on the SAT than whites, Asians, males and students from high-income families.

The College Board, the non-profit organization of 3,200 schools and educational organizations that sponsors the SAT, says murmurs to eliminate it are wrong.

"The recommendation is like breaking the thermometer because you don't like the temperature," the College Board said.

In California the proposal was made this month by a task force convened five years ago to find ways to bring more Hispanic students into the university system. Four percent of all Hispanics who graduate from the state's high schools meet the system's admission standards.

Demographic trends in California, the nation's most populous and diverse state, suggest that 500,000 additional students will seek entry to public colleges by 2005, with an increasing percentage of them minority students.

In a report released last week, Rand, a think-tank based in Santa Monica, Calif., said the situation poses "a grave danger to society."

"The college degree has replaced the high school diploma as the entry card into productive employment," the report concluded.

"If this degree is increasingly out of reach for large segments of the California populations, then a revolution in education is essential to avert increasing social unrest."

The recommendation to eliminate the SAT would increase the number of students of all backgrounds eligible for admission to the California system. At present the state guarantees admission to the top 12 percent of high school seniors, but without the SAT up to 18 percent of graduating seniors would be eligible, said Carla Ferri, director of undergraduate admissions for the University of California system.

Raymund Paredes, associate vice chancellor for academic development at UCLA and a member of the Latino Eligibility Task Force, said the group settled on the recommendation after finding little correlation between Hispanic students' score on the SAT and their success in college.

"How well are we measuring merit? My answer is, I don't think we do it nearly as well as we could," Paredes said.

He said the biggest concern was not so much possible test bias as the inability of the test to forecast accurately how Hispanic students would fare in college.

The College Board argues that the way to help Latinos and all students better prepare for college is to improve elementary, middle and high schools and to correct the socioeconomic conditions that affect children's readiness for school.

Others contend that dropping the SAT requirement would be tantamount to lowering admissions standards.

"It seems to me that the recommendation is driven by the desire to simply increase the number of Latinos or to simply increase diversity," said Ward Connerly, the University of California regent who championed the university's new policy against racial preferences. "I believe our admissions criteria should always be driven by the desire to increase quality."

He and others said they believed that eliminating the test would only lead to grade inflation at high schools.

The broader question raised by the task force recommendation and by other critics of the national test is whether the SAT and other standardized tests really do provide a benchmark.

A growing number of colleges and universities have chosen to make the test optional. The number of such schools has risen from 189 to 284 in the last three years, according to FairTest.

The ACT (formerly known as the American College Test) is used primarily by schools in the Midwest.

The SAT, which is taken by more students, has been more widely studied. Though no one argues that certain minority groups receive lower scores, no one study has been able to pinpoint why.

Researchers speculate that the timed nature of the test hurts students who are not native English speakers, presumably because they need longer to read the verbal section and the math section, which contains word problems.

All the same, the results of the tests often defy explanation. For instance, in California, Asians in the lowest income group scored higher than blacks in the highest income category.

LOS ANGELES TIMES, September 19, 1997 SECTION: Part A; Page 1; Metro Desk

HEADLINE: UC URGED TO DROP SATS AS ADMISSION CRITERIA; EDUCATION: TASK FORCE SAYS THE MOVE WOULD MAKE MORE LATINOS ELIGIBLE FOR SYSTEM. REGENTS ARE RECEPTIVE TO IDEA.

BY: Randal C. Archibold And Richard Lee Colvin, Times Staff Writers

A University of California task force Thursday called on the Board of Regents to eliminate the use of SAT scores in admissions decisions so as to boost the number of Latinos eligible for the state's elite college system.

The Latino Eligibility Task Force, composed of faculty members and administrators from nine campuses, warned that continued use of the standardized Scholastic Assessment Tests could mean a drop of up to 70% in the number of Latino students at the system's most selective campuses, UCLA and UC Berkeley, as affirmative action comes to an end in undergraduate admissions. That plunge would come as the number of Latinos in kindergarten through grade 12 in California's classrooms is rising dramatically, and may reach 50% of total enrollment within a decade.

"Any way you look at it, it is not a healthy dynamic for Latinos, it is not a healthy dynamic for the state," said Eugene Garcia, the dean of Berkeley's school of education, who chaired the task force.

The panel said that eliminating the SAT as a requirement would more than double the number of Latinos eligible for admission to the UC system.

The proposal to make the tests optional received a remarkably warm reception from the regents, even Ward Connerly, who led the statewide campaign to abolish affirmative action.

Connerly did suggest, though, that the goal should be to help all poor students--who tend to score lower on the tests--regardless of their race or ethnicity. "The things you are saying are not unique to Latinos," he said. "They apply across the board to Asians, whites, blacks . . . to a lot of students who are disadvantaged."

Some critics will no doubt see the recommendation as a way to make an end run around the regents' decision to end affirmative action, in order to again give preferences to minorities.

But university President Richard Atkinson welcomed the proposals, though he stopped short of endorsing them. "This is something we should move on," he said. "I find this recommendation a very interesting one."

The Board of Regents, which requested the study, could vote on the proposals as early as next March, after they go through a series of committees. If approved, they could be implemented with the freshman class entering UC schools in the fall of 1999.

The task force recommendation is the latest of a series to take a fresh look at admissions criteria with the end of affirmative action, which already has resulted in drastic reductions in the number of blacks and Latinos entering some UC medical, law and business graduate schools. With the ban on affirmative action being extended to undergraduates this academic year, admissions decisions will be based almost exclusively on students' high school grades and scores on the verbal and math SATs.

Some of the ideas floated have included automatically admitting--regardless of their SAT scores--the valedictorian from each California high school, the top 6% or even the top 12.5% of each school's graduating class.

Faced with a similar situation after an anti-affirmative action court decision, Texas this year passed a law granting the top 10% of the students at each high school admission to public colleges beginning next fall. Students meeting that standard do not have to submit standardized test scores.

If the UC system were to stop requiring applicants to take the SATs, it would join about 285 four-year colleges nationwide that have done so. Applicants to the California State University system with a B average or better in high school already do not have to submit standardized test scores, although most do.

The task force recommendations were applauded by FairTest, a Boston-based organization that advocates optional use of the SATs, contending that the tests do not accurately predict how well high school students will perform when they get to college.

Bob Schaeffer, a spokesman for the group, said it is better to make admissions decisions based largely on high school grades, because that enables "kids who have performed well in the classroom over time to be rewarded for it to get a chance at the next level."

But Fred Moreno, a spokesman for the College Board, which oversees the SATs, defended the tests as objective measures that enable universities to compare applicants from different schools or states--especially in an age of grade inflation, when legions of students graduate from high school with A averages.

The lower scores for some minority groups do not mean the tests are biased, he said, but sometimes reflect the poorer schools they attend. Mexican American students, in particular, take far fewer academic courses than those from other groups, he said.

"We do know there is a relationship . . . between the amount of academics in high schools and tests such as the SAT," he said.

So, he said, "The thing to do would be to try to improve the academic preparation of those kids, so they can do better."

Currently, the UC system evaluates applicants based on a formula that weighs their grades and scores on the well-known SAT math and verbal exams, along with their scores on other SAT tests in subjects such as physics and history. At Berkeley, that formula alone determines about 50% of the admissions decisions.

The UC task force recommended that in place of the SATs, admissions officers use alternative tests, such as the end-of-course Golden State exams, which many students now take to achieve academic honors. Those are not general aptitude tests, but are based on schools' curriculums.

Some campus chancellors urged caution in making a major change in the admissions process.

UCLA Chancellor Albert Carnesale said he would need to study the issue. He said that "the best predictor of how well a student will do in courses is how well they did in high school ," but that universities also need other measures, such as the SATs.

UC Berkeley Chancellor Robert M. Berdahl similarly said that the proposal is worth studying but that he is concerned about its impact.

The report cast a stark light on Latino access to the UC system, in which just 4% of the 155,000 students enrolled last year were of that ethnicity.

Latino families want the best higher education for their children, but those "aspirations have been washed away by the cold-water reality of bad schools, cultural and social discrimination, and a great, but unwelcoming university," the report said.

"Things cannot remain the way they are. Ya basta!!!!," meaning enough is enough.

According to the report, dropping the SATs would raise the eligibility among Latino high school students from 3.9% to 6.2%--a 59% rise. Eliminating the tests also would make 16.9% of all students "UC eligible"--above the Master Plan for Higher Education's limit of 12.5%--meaning that not all eligible students would find a seat.

Aside from dropping the mandatory SATs, the report recommends expanding "outreach" by UC campuses to help improve schools.

The report also suggests a multimedia campaign in Spanish and English to educate Latino students and their parents about the UC system and what is necessary to attend.

The task force advocated going ahead with building the new UC campus proposed for Merced, saying it would help serve the rising Latino population in the Central Valley. Regents today are expected to formally authorize planning such a campus, although there are no funds to build it.

The report came on a day when the Rev. Jesse Jackson appeared at the regents' meeting to scold the board for its own 1995 resolution eliminating affirmative action, a move that then gained statewide support with last November's passage of Proposition 209.

"You are locking our youth out to lock them up in jail," Jackson said. "We are building first-class jails and second-class schools--a moral disgrace."

Last fall, Latinos made up about 18% of the students at UCLA, while 40% were Asians, 35% white and 6.3% African Americans.

For this fall's incoming class, 1,521 Latinos were accepted out of 3,727 applicants. The Latino students as a group had a grade-point average of 3.9 and a combined verbal and math SAT score of 1126.

By comparison, Asian American freshman at UCLA had a grade-point average of 4.13 and a combined SAT of 1282, and whites had a grade-point average of 4.06 and a combined SAT of 1280.

African Americans' grade-point average was 3.78 with a combined SAT of 1108.

The discussion over the use of SAT tests in undergraduate admissions comes as the University of California grapples with a 1996 regents decision to end affirmative action. The number of minority students admitted to some medical, law and business schools already has declined. Groups such as FairTest, which tracks the use of standardized exams like the SATs, contend that they are not good predictors of who will do well in college and that they favor students who can afford expensive coaching courses. They also point to research showing that students whose first language is not English have greater difficulty with such tests because they are slowed down by the process of translating the questions.

SACRAMENTO BEE, June 11, 1997 SECTION: EDITORIALS; Pg. B6

HEADLINE: **ADMISSION BEYOND THE NUMBERS**

BY: Peter Schrag

By now, it should be amply clear that the admissions process of the University of California has been largely a mechanical, numbers-driven operation, with the pertinent numbers being a combination of high school grade point average in the UC-required A to F subjects (English, math, science, foreign language, the social sciences) and SAT scores. UC also requires students to write essays but, with the exception of borderline cases, has rarely read them.

But since the university, and especially the selective campuses at Berkeley and UCLA, found the roster of applicants filled with high-scoring whites and Asians, it gradually added another set of numbers to mitigate the effect of the first set and to increase the representation of blacks and Latinos.

Those numbers -- at Berkeley, they were set up as a "matrix" table -- gave low-income and minority applicants who scored somewhat lower than whites and Asians what were, in effect, extra points in the admissions process. But the way the matrix was set up, an affluent black applicant from out of state got more extra points than a poor Asian applicant from California. In their own councils, even some university officials appear to have worried that that system was both unfair and, had the civil rights laws been rigorously enforced, probably illegal.

NOW, of course, the regents' resolution and Proposition 209, the voter-approved ban on all race-based preferences in the admissions process, make all that moot. The prohibitions on race-based criteria appeared to be having consequences in declining minority undergraduate applications even before they formally take effect with the undergraduate classes admitted in 1998. They have had an even sharper effect in admission to UC's professional schools, where they have been formally implemented -- particularly the law schools, where the race preferences were often even more blatant.

But as UC and places such as the University of Texas, which is under a federal court order to cease its own race-based admissions, seek other ways to preserve ethnic diversity, there may be a more salutary consequence as well. In California, at any rate, there was never any obvious reason, other than administrative convenience and political caution, for the near exclusive use of GPA and SAT scores. Did those two numbers really identify the top 12.5 percent of California's high school classes -- those who, under the 1960 master plan, are eligible to attend UC?

The other day, UC Provost Judson King acknowledged that UC's admissions process had been "very formulaic," and that it was likely to become "more holistic" as UC seeks ways to find broader measures to help judge its applicants. What that will mean is still a mystery. Certainly the use of the GPA and SAT ought not (and will not) be scrapped. But they clearly are only two criteria among many and, in the view of a growing number of college admissions officers, hardly the only things that should be considered.

In the past few years, tests such as the SAT have been under growing attack, particularly from liberal groups that argue that such tests are both unreliable predictors of college success and biased against women and minorities who may not be as proficient in test taking as white males.

Those attacks are hardly the last word on the issue. A half-century ago, the SAT was regarded as the most effective means of checking the old-boy network bias of college admissions officers, who would just as soon take any gentleman's C from Choate or Deerfield over any A, particularly the A of a Jew or a black, from a public school in New York City or Chicago. As the pressure mounts for ethnic diversity, it's well to remember that history.

Yet places such as UC are now almost alone in the extent to which they've relied on the numbers. At Harvard or Amherst or Swarthmore, which could fill their classes with perfect GPA's and through-the-roof SAT's, the whole folder is read -- on the student's background; on what he or she has done, in the arts, in science, in unusual jobs or travel outside of school; on achievements in the community and handicaps overcome; on evidence of commitment to service; on what the individual could contribute to the campus and world around him.

The Texas Legislature, in an effort to preserve ethnic diversity, is approving legislation that would give every student in the top 10 percent of a graduating class a place at UT; UC President Richard Atkinson has expressed support for a similar proposal that would guarantee every Californian who graduates in the top 4 percent of his or her high school class a place at UC.

Those are ideas worthy of consideration. At the very least, they guarantee geographic and income diversity. They would also discourage further school segregation and might even spur some re-integration, as brighter students look for soft-touch high schools. But they could bring in some totally unqualified students. And they are still formulaic; they still focus only on the numbers, not the real diversity -- of interest, of background, of achievement -- that comes from doing the thing the hard way: picking students as individuals (and, it's hoped, picking a lot more of them from community colleges). It will be expensive and may well generate some political heat, but if it's done right, it could be worth every cent.

The Houston Chronicle, August 25, 1996 SECTION: a; Pg. 1

HEADLINE: **TREE OF KNOWLEDGE BRANCHES OUT; UNIVERSITIES LOOKING AT 'WHOLE STUDENT' FOR ADMISSION PURPOSES**

BY: Jennifer Lenhart

As she entered her senior year, Bellaire High School student Emily Jones couldn't wait to fill out her college application forms.

She was proud of her grade point average of 4.3 and her combined Scholastic Aptitude Test scores of 1250, a record that would guarantee her admission to the University of Texas

As she entered her senior year, Bellaire High School student Emily Jones couldn't wait to fill out her college application forms.

She was proud of her grade point average of 4.3 and her combined Scholastic Aptitude Test scores of 1250, a record that would guarantee her admission to the University of Texas at Austin and Texas A&M University.

A few miles away at Strake Jesuit College Preparatory school, senior Bryant Moore worried about the impression he would make on these applications, with the weight they gave to numbers.

His high school GPA was 3.1 and he had scored 1120 on the SAT

Then the rules changed. Earlier this month, provosts at UT and A&M announced they had broadened their admissions criteria for undergraduates. They would now be looking at the ""whole student,'' reaching out to extracurricular stars, those who had overcome obstacles, those whose parents hadn't gone to college.

The sea change in state school admissions policies grew out of the 5th U.S.Circuit Court of Appeals' controversial Hopwood decision last spring outlawing race-based admissions at UT Law School. Fallout from the decision, named after lead plaintiff Cheryl J. Hopwood, seeped into the world of academia all summer, influencing policies for admissions and financial aid at private and public schools in Texas, Mississippi and

Louisiana.

The UT and A&M decisions were the most recent.

It brought with it a stunning reversal of fortune for the relatively small number of students in public and private high schools who had spent the first three years of school preparing for an admissions scenario that will no longer exist.

Jones, 17, who wants to major in music education, labored under the promise that her stellar grades and a high class ranking guaranteed her a spot in UT's freshman class. She said she understands why some people might feel cheated.

""For the people who planned for four years that all that's necessary is a certain class rank and a certain test score then it's unfair, it's unfair for them to be pushed out on a year's notice or less,'' she said.

But even under the new criteria, Jones, a cheerleader and soccer team trainer, said she is confident she still has a good package to sell. She's involved in a lot of activities and is in the top quarter of her class.

The new emphasis on activities brightened the prospects for students like Moore, 17, whose GPA places him in the demanding school's second tier. Moore, who aims to be a civil engineer, had energetically expanded his horizons as student council secretary and Wheeler Avenue Baptist Church volunteer. He set his league's state record in the triple jump.

He thought all of that would mean little if he couldn't get past the initial screening.

UT was third on his college list, which includes Stanford, Georgia Tech, Washington University, Morehouse and Vanderbilt.

The home of the Longhorns was third, Moore said, at least in part because he thought the admissions committee would not consider his whole profile.

""I knew I would impress with my volunteer work and other extracurriculars and recommendations and things, but I knew my grades weren't that great and since they put such a majority of their decision on the grades, I was a little apprehensive about whether they would put me in the school,'' Moore said. ""I think with the well-rounded emphasis I should be more appealing. ''

Financial aid decisions also will change with the new approach. Bellaire senior Brian Cummins, 17, an officer in the honor society and a varsity soccer player, said his family couldn't afford to send him to college without a financial boost. The would-be computer engineer is hoping his chances have improved for aid, and he also will get a job and apply for scholarships.

"'Now it will be based on need rather than race and therefore my need will be compared to others," said Cummins, who is white. "'I realize there's some people that have less opportunity and they're the ones who should be sought out to receive aid. However, it shouldn't be based on whether they're a minority but whether their family is unable to support them. '"

Admissions counselors have already started talking with students about the changes they will need to make in their applications - or in their activities and course schedules.

""It's a good opportunity for people who excel in areas of extracurricular activities and things close to the academic process," said Mark Yudof, UT's executive vice president and provost and dean of the law school at the time the suit was filed. ""If you're the editor of the newspaper, you're a diving champion, you've won a piano competition, that's good. We're going to be looking at the whole student. "

For the first time, those applying to UT will have to write essays, something not yet required by A&M

A&M will keep its automatic admissions program whereby the school admits students meeting minimum GPA and SAT scores. The cutoff is the first 5,000 students admitted or Dec.9, whichever comes first, said Sallie Sheppard, associate provost of A&M

Automatic admissions will be abolished at UT. Yudof said that was a change the school had been leaning toward for years as the number of qualifying applicants rose. In the 1995-96 academic year, he said, the school could have admitted nearly its entire freshman class from that pool alone.

""That's not a good position to be in,'' Yudof said. ""You want people to look at the low scores to see if there are some diamonds in the rough. We'll look at things like overcoming a poor neighborhood, being the first in the family to go to college, coming from a blue-collar family. ''

The broader criteria may have been prompted by the Hopwood decision, but the move to a more subjective admissions process was in the works for a while at both schools.

""We had felt that just test scores is not enough to use in the selection of a class because we're looking for leadership,'' Sheppard said. ""We're trying to train the leaders of tomorrow. '' Seniors who get in a panic over the new requirements and try to get overly involved in extracurricular activities in a short time should take notice, Yudof said. If a college senior stranded without activities asked his advice, he would urge them to make a meaningful contribution.

""It's not just padding your resume,'' he said, ""it's taking a leadership role - not just attending the French club meeting once a month. ''

Counselor Thomas Kulick, guidance director at Strake, said his second tier students have studied in a rigorous environment.

They could probably rank at the top of the class in many public schools. But under the old policy, students in Strake's second tier usually were denied admission at A&M and UT simply because they weren't at the top.

Even those in the first tier ended up competing against each other for places at the most popular schools. The new admissions policy willmake more students more competitive, Kulick said, and it will help students at private schools such as Strake, which makes volunteer activity a requirement.

At Bellaire, students in the second quarter of this year's senior class have GPAs ranging from 3.1944 to 3.9487 (competition is so fierce, GPAs are figured to the fourth decimal point). Under the old UT policy, that would not have been enough to gain admission. Now these students will be able to compete.

That's bad news for other Bellaire students, with whom UT is popular. Almost 25 percent of the 557 graduating seniors in 1996 enrolled at UT, and admission to the school has always been competitive among success-driven Bellaire students.

""Previously, you didn't have to do very much on the SAT to get into UT, I think it was 1050,'' said Shirley Raby, senior guidance counselor. ""As a result our kids who were in the top quarter automatically counted on being admitted there. ''

That's a change some students might find hard to accept, Jones said.

""I know a lot of people, their focus is academics and they want to succeed in that and they focus on that and if they do get involved in extracurricular activities, they don't take the leadership roles,'' Jones said.

The Hopwood decision had its origin in race: The white students who sued UT Law School prevailed with the argument that the school had practiced unconstitutional discrimination.

Applicants to UT will no longer indicate their race or sex on application forms. They will be asked to provide this information on a separate form, which the school said is for statistical purposes only.

Moore, who is African-American, said he was relieved that he would not have to check off a box.

""I do feel that I'm more comfortable with that because in a sense it will do away with the stereotype that minorities get in just for their race,'' he said. ""It will probably help non-minorities, too. In general it will be a lot better for the Texas community. It will ease racial tensions at the school. ''

SECTION: EDITORIAL, Pg. V2

LENGTH: 606 words

HEADLINE: EDITORIAL;
TEST OF FAIRNESS; UC ADMISSION STANDARDS MUST BE MEANINGFUL, YET JUST.

BODY:

AFTER eliminating affirmative action, University of California regents are grappling with the challenge of finding ways to boost minority enrollment without lowering standards.

Last week, a UC committee told the regents that they could achieve the first goal by abandoning the Scholastic Assessment Test as an entrance requirement. This idea raises more questions than answers.

If, as critics claim, the SAT is a biased test, this could be an opportunity to revamp admission criteria so California's leading public universities don't discriminate against qualified applicants of any race, gender and ethnicity. But how should that be accomplished?

For starters, the UC system should forget the notion of automatically accepting students on the basis of their ranking in the top 10 or so percent of their graduating class without consideration of any other factors.

Such a blanket acceptance, without regard for a particular high school's quality or a particular student's suitability for the UC, is a recipe for disaster - and would be a worse situation than the affirmative action program which was banned by the regents and later banned statewide by voters through Proposition 209.

The big problem with unqualified acceptance of the top percentage of high school graduates is its one-dimensional nature. It would recognize only one performance gauge - namely, adaptability to classroom strictures during a four-year period in the teen-age years.

Certainly, grades are important. Certainly, many other factors are important, too, and taking them into consideration also will enable UC officials to make

more textured judgments. Surely they can give due consideration to applicants whose pace of scholastic development, personality type or intellectual gifts might foretell success in a university environment, even if some of those traits were unhelpful in high school. (We are reminded of the oft-told story about Albert Einstein flunking high school algebra.)

If it's true that the SAT has a socioeconomic bias which unfairly discriminates against poor and minority students - as the chairman of the UC task force said last week - then California education leaders need to fix what's broken. They have to do that to prevent unjust treatment of the public, and not simply because the state's minority population is growing rapidly.

Ultimately, what must be done is to improve the state's public elementary and high schools, so children of every background have a fair chance to prepare for college.

In the short term, what must be done is to ensure that UC entrance requirements really mean something and are relevant.

That's why automatic admission of the top bracket of state high school graduates, with no consideration of other factors, makes little sense. If that were to be the policy, why should there be a rush to adopt national testing as President Clinton recently called for? If such testing means anything, then one must conclude that all high schools are not alike in terms of quality and productivity.

The UC system needs - and the public wants - campuses to be filled with students who have a strong drive for academic success, not necessarily those who only possess high SAT scores or who graduated with good grades after coasting through easy high school courses.

Diversity at UC schools is a worthy and important goal. It can be achieved by developing admissions criteria that reflect a work ethic, intellectual development, character and other qualities that make for success.

Surely, all the great minds in the proud UC system can achieve this without diminishing standards.

LANGUAGE: ENGLISH

LOAD-DATE: September 22, 1997

THE DAILY NEWS OF LOS ANGELES, September 20, 1997 SECTION: NEWS, Pg. N3

HEADLINE: **EDUCATORS QUESTION USEFULNESS OF SAT**

BY: Terri Hardy, Daily News Staff Writer

Top L.A. Unified officials questioned the need for the standardized tests Friday, a day after a University of California Regents task force proposed eliminating SAT scores as admissions criteria.

''They should seriously take a look at eliminating it,'' said Bob Collins, director of instruction for high schools in the Los Angeles Unified School District. ''No one would complain about a norm-referenced test if the playing field is level, but it isn't.''

Collins said that in addition to language barriers, there is a clear relationship between low family income and low scores on the nationwide Scholastic Assessment Test.

Children in poorer families are often not supported when it comes to test-taking or college attendance. And they often aren't able to take the expensive preparation tests given by private companies that promise to boost scores, he said.

''Disadvantaged kids are at a disadvantage when they take the test,'' Collins said.

LAUSD Superintendent Ruben Zacarias pointed out that 285 four-year colleges and universities across the country no longer use the SAT.

''The SAT may not be necessary,'' Zacarias said. ''But certainly, whatever is decided, we want our students to meet admissions criteria, and that's why we're requiring them to take tougher academic classes.''

But at El Camino Real High School in Woodland Hills, the SAT elimination proposal by the regent's Latino Eligibility Task Force didn't sit well.

''My family would be upset. I'd be upset. The majority of students here would be upset. El Camino stresses the SAT. It would be a let-down after all the prepping we do,'' Steve Glickman, the 17-year-old student body vice president. Glickman has taken the SAT exam three times to improve his chances to get into a good college.

The UC Latino Eligibility Task Force wants to eliminate the test to boost the number of Latinos that will be eligible to attend the University of California's campuses.

Glickman understands their rationale.

"It's totally culturally biased," Glickman said of the standardized test. "Students who are new to this country are not going to do as well on the verbal sections."

Glickman's conflicting feelings echo the dilemma now facing educators in high schools and the Board of Regents, which will decide if the SAT should be eliminated.

Since high schools have varying standards for grades, critics of the proposal say it would be unfair to take away a standardized test that allows a comparison of students across the country.

In 1996-97, almost 11,000 juniors and seniors in the LAUSD took the SAT; 43 percent of those were Latino. In the same year, 1,716 enrolled in the UC system - 314 were Latino.

The UC Latino task force found that the SAT was racially biased and not a good indicator of how well a Latino student would do in college, said Raymund Paredes, a member of the task force and associate vice chancellor for academic development at UCLA.

Research suggested that if admissions criteria did not change, there would be a 50 to 70 percent drop in the number of Latinos and African-Americans attending UCLA and UC Berkeley - the system's most selective schools.

"We're not suggesting that we lower entrance requirements, we're suggesting we make them fairer," Paredes said.

The study's findings comes as affirmative action comes to an end in undergraduate admissions but was started before voters passed Proposition 209, Paredes said.

The task force, composed of faculty and administrators from the UC system's nine campuses, said that another standardized test, such as the Golden State exam, could be substituted for the SAT.

But in the high schools, students and their college counselors believe that the SATs should be maintained as a gauge between applicants.

At El Camino, where 111 seniors were admitted to UC schools last year, competition for good grades, good universities and a whopping SAT score is intense.

College Counselor Elenna Turner said UC campuses evaluate which students to accept by comparing El Camino students against each other - not with students at other campuses where the curriculum is not as rigorous.

That process means that some students who are not as academically sound are granted UC admission, Turner said.

She remembers one case where a Latina senior, with a 3.4 grade-point average in a host of honors courses and a good SAT score was denied admission into UC Santa Barbara.

''In any other school that girl would have been No. 1 in her class,'' Turner said.

Eliminating the SAT, the gauge of comparison between students at different schools, could make the process more unfair, educators said.

''The SAT is a way of selecting those students who are more prepared,'' said Judy Jackson, college adviser at Sylmar High School.

The College Board, a nonprofit group that sponsors the SAT, claims that grade inflation is a national problem.

As proof, they point to their figures, which show that more students got better grades from 1987 to 1997, but their SAT scores fell during that time.

Educators agree that the problem of grade inflation will need to be addressed if the UC Regents decides to eliminate the SATs.

''I'm sure that members of the Latino task force don't want kids to flunk out because they haven't been prepared,'' said Thomas Lifka, assistant vice chancellor of student academic services at UCLA.

Lifka said making new eligibility requirements will be a complex process. If the SAT is eliminated and the pool of eligible students becomes greater, as the task force envisions, then it will have to be determined how to select from that group.

Janice Gams, a spokeswoman for the College Board, said the test has been accused of racial bias ''for a long time'' but that the problem in fact rested with the student's preparation.

''Academic preparation matched the scores. Mexican-Americans were least prepared on average,'' Gams said.

Michael Trujillo, 18, who graduated last year from Birmingham High School, said the SAT is an essential school experience.

''With adults, it's death and taxes. With students it's homework and SATs,'' he said.

SACRAMENTO BEE, September 19, 1997 SECTION: MAIN NEWS; Pg. A1

HEADLINE: *UC PONDERS LESSER ROLE FOR SAT TESTS*

BY: Brad Hayward, Bee Staff Writer

University of California leaders indicated Thursday that they will consider eliminating the SAT exam as a factor in undergraduate admissions, instead replacing it with some other test that might better predict applicants' college success.

Eliminating the SAT from admissions criteria, some claim, would increase the number of minorities -- especially Latinos -- who would be eligible to enter the UC system. The proposal comes as UC officials struggle to find alternate ways to maintain student diversity after the UC Board of Regents abolished the use of affirmative action in admissions.

No action was taken Thursday, and the idea is only in the talking stage. But some regents, along with key UC administrators, appeared receptive to investigating the proposal, which was put forward by a task force that has been investigating Latino students' eligibility for UC entrance.

"It's a very powerful recommendation. We need to attend to it," said UC President Richard Atkinson, who later added to reporters that he does not see "why there would be any great obstacle" to making the submission of an SAT score optional in UC undergraduate admissions.

In a separate, surprise development Thursday, Atkinson was at least temporarily thwarted by Gov. Pete Wilson in his effort to implement domestic partners benefits for UC faculty and staff.

Wilson, who did not attend the meeting, got the regents to place the issue on a future agenda -- for a vote by the regents -- rather than allowing Atkinson to act unilaterally.

On the testing matter, UC currently requires its applicants to take the Scholastic Achievement Test, though the role the score plays in the admissions process varies. Applicants with a 3.3 grade point average or higher in selected courses are deemed UC-eligible regardless of their SAT score, UC officials said, but those with lower grade averages can earn eligibility with a strong SAT performance.

In a report Thursday, UC's Latino Eligibility Task Force claimed that eliminating the SAT as an admissions criterion could increase the proportion of UC-eligible Latino high school graduates from the current 3.9 percent to 6.2

percent, an increase of 59 percent. Overall student eligibility also would rise from 12.3 percent to 16.9 percent of high school graduates.

That, the report alleged, is because the SAT does not accurately predict the academic performance of Latinos -- nor the performance of other ethnic minorities and women -- once they enter college.

Administrators of the SAT have long defended the utility of the test. But task force members said it would be better for UC to use a test that more specifically measures the content taught in California schools, such as the test that the state is expected to implement within the next few years after new statewide academic standards are developed.

The SAT "is clearly not a good predictor for Latino students," said Eugene Garcia, chairman of the task force and dean of UC Berkeley's School of Education. "If we have a set of standards and an assessment aligned with those standards, it would be better than an aptitude test not aligned with what we're teaching in the schools."

Several regents indicated an interest in pursuing the idea without firmly committing to it. "I think your findings can be justified," regent Stephen Nakashima told Garcia.

Atkinson, speaking about the use of test scores in higher education generally, said, "We've gone off the deep end in using a two-point difference in test scores to make decisions that we don't have the evidence to justify."

Dennis Galligani, UC assistant vice president for student academic services, said a statewide faculty committee on admissions will consider the proposal, though any final change in entrance requirements would be up to the regents. The earliest a change could be implemented would be for students entering UC in fall 1999, he said.

"It's not something you want to just jump into," Galligani said.

On the domestic partners matter, Atkinson brought before the regents a proposed health benefits policy, saying he intended to implement it under his presidential authority, without a vote of the board, "unless discussion indicates otherwise."

Atkinson proposed that, starting Jan. 1, same-sex domestic partners of UC faculty and staff be granted medical, dental and vision benefits. Such a move would add between $ 1.9 million and $ 5.6 million a year to UC's $ 400 million in annual expenditures on employee benefits. It also would bring UC into line with competing institutions -- Stanford, Yale and Harvard among them -- that already offer such benefits.

Several regents appeared inclined to allow Atkinson to go ahead with the plan. However, regent John Davies, Wilson's judicial appointments secretary, said the governor had asked him to urge the board to instead schedule the matter for a vote at its November meeting. Board Chairman Tirso del Junco did so.

Davies told reporters that Wilson is concerned that, since some state lawmakers do not support domestic partners policies, a unilateral UC action to implement such a policy without a regental vote could spell trouble for future UC budgets in the Legislature.

Wilson spokesman Sean Walsh said the governor has no position on Atkinson's proposal but believes it is a policy that the regents should have the opportunity to vote on. Atkinson was not available for comment on the matter.

THE CHRONICLE
of Higher Education.

November 28, 1997 • $3.25
Volume XLIV, Number 14

To the Editor:

An otherwise accurate article about growing disenchantment with the SAT and other standardized admissions tests gives too much credit for this trend to opponents of affirmative action. While it is certainly ironic that conservatives' apparent faith in the SAT is helping to spur widespread and critical scrutiny of the test, the nationwide move away from reliance on the SAT and its cousins long predates California's Proposition 209 and the *Hopwood* decision in Texas. The problem with these tests is that they are simply not good measures of merit for many students, particularly low-income, minority, and female students.

The attacks on affirmative action in courtrooms and legislatures may not have ignited the move away from standardized tests, but they have given the issue considerable political urgency in Texas, California, and elsewhere. After the *Hopwood* decision in Texas, an advisory committee to the Texas Higher Education Coordinating Board concluded that "the use of standardized tests unduly limits admissions" and "has a chilling effect on the motivations and aspirations of underserved populations." The committee's recommendations that public universities in Texas de-emphasize the use of SAT and ACT scores is now embodied in state law.

More generally, changes in college admissions practices demonstrate growing skepticism about the utility of SAT scores. Nationwide, nearly 300 colleges and universities no longer use SAT or ACT scores to make admissions decisions about some or all of their applicants. Hundreds of additional schools sharply de-emphasize test scores but have not declared that an official policy. Even many schools that do still use the tests in admissions do not require them from members of one of the fastest-growing groups of applicants, those aged 21 or older.

Selective schools such as Bates College have reported that, by no longer requiring standardized admissions tests, they have increased the diversity of their applicant pools without sacrificing academic quality. These experiences, along with the findings in Texas and research by the Latino Eligibility Task Force in California, confirm that the SAT and other tests represent a barrier to the combined goals of equity and excellence in higher education.

Part of the difficulty in overcoming these barriers is the widespread belief that standardized admissions tests help provide broader access to higher education. Your article promotes that myth by reporting that standardized tests were introduced to higher education in the 1940s in order to help provide greater opportunity for Jewish and other academically qualified students at Ivy League universities. However, the early roots of the SAT lie in the racist, anti-immigrant Army Alpha tests of the 1920s. And the use of intelligence testing for college admissions began at Columbia University in 1917 in order to *limit* the number of Jewish and other students without a formal policy of restriction. Now, as then, these tests help exclude qualified students from all backgrounds and should therefore be sharply de-emphasized.

Charles Rooney
FairPlay Campaign Director
FairTest
Cambridge, Mass.

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NOVEMBER 10, 1997 TIME VOL. 150 NO. 20

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WHAT DOES SAT STAND FOR?

Why an end to affirmative action might doom a rite of passage that every high-schooler fears

By **JOHN CLOUD**

HERE'S A QUESTION YOU WON'T find on the SAT: What does SAT stand for? A) Scholastic Aptitude Test. B) Scholastic Assessment Test. C) Slimy and Atrocious Torture. D) Nothing.

If you answered C, you might have read a book by high-schoolers called *Up Your Score: The Underground Guide to the SAT.* But the real answer, surprisingly, is D.

Yes, the test used to be called the Scholastic Aptitude Test, but like so much about the SAT, even the name was causing controversy: some felt that the SAT measured only an aptitude for taking aptitude tests. Plus, the test's sponsors found that some students viewed aptitude as a genetic quality, casting the SAT as a kind of annual experiment in eugenics. "That was a misconception," says Janice Gams, spokeswoman for the College Board, an association of 3,200 high schools and colleges that oversees the exam. Hence the test is now simply called SAT.

But these days it's facing more than just an identity crisis. Rarely have those who revile the exam—including many of the 1 million students who take it each year—had so much to celebrate: because of new state prohibitions against affirmative action, public universities in California and Texas are struggling to find ways to remain racially diverse. One solution: scrap SATS, since minorities score worse, on average, than whites. The University of California is considering a proposal by its Latino Eligibility Task Force to eliminate SATS from admissions decisions in order to boost Latino enrollment. Public universities in Texas have already dropped standardized tests for many applicants in order to comply with a state law passed earlier this year automatically admitting those who finish in the top 10% of their high school—no questions asked, no SATS required.

In addition, a small but growing number of liberal-arts colleges have made test scores optional, in part because they want to draw minorities. Schools such as Connecticut College in New London; Muhlenberg in Allentown, Pa.; and Franklin & Marshall in Lancaster, Pa., have followed the lead of Bates College in Lewiston, Maine, which made scores optional in 1989 and has studies saying that quality hasn't suffered as a result.

RACE IN AMERICA

Prominent members of the liberal intelligentsia are launching new attacks on the SAT, questioning its basic assumption that intelligence can be measured digitally. Nicholas Lemann, who is finishing a book delineating the rise of the American "meritocracy," argues that the SAT-focused admissions system magnifies inequalities in public schools by keeping low scorers from prominent careers; he also says it fails to evaluate a student's character. "Numerical measurement isn't the answer to everything in life," Lemann says. Law professor Lani Guinier co-authored a *California Law Review* article last year arguing that because standardized tests don't anticipate success in school very well, admissions officers should pay less attention to them.

The debate they are renewing stretches back decades ("ages and ages," sighs chief College Board researcher Howard Everson). Some point out that high school grades are a better predictor of college success than SATS. Others argue that the test favors not just whites but boys. An entire advocacy group called FairTest exists almost solely to generate press releases that chip away at the SAT's encrusted position in American education.

Still, there are no real alternatives to the SAT and its kid brother, the ACT. (Produced by an Iowa City testing company and formerly called the American College Testing Assessment, the ACT is almost as widely taken as the SAT but considered less prestigious.) Despite the attacks, the per-

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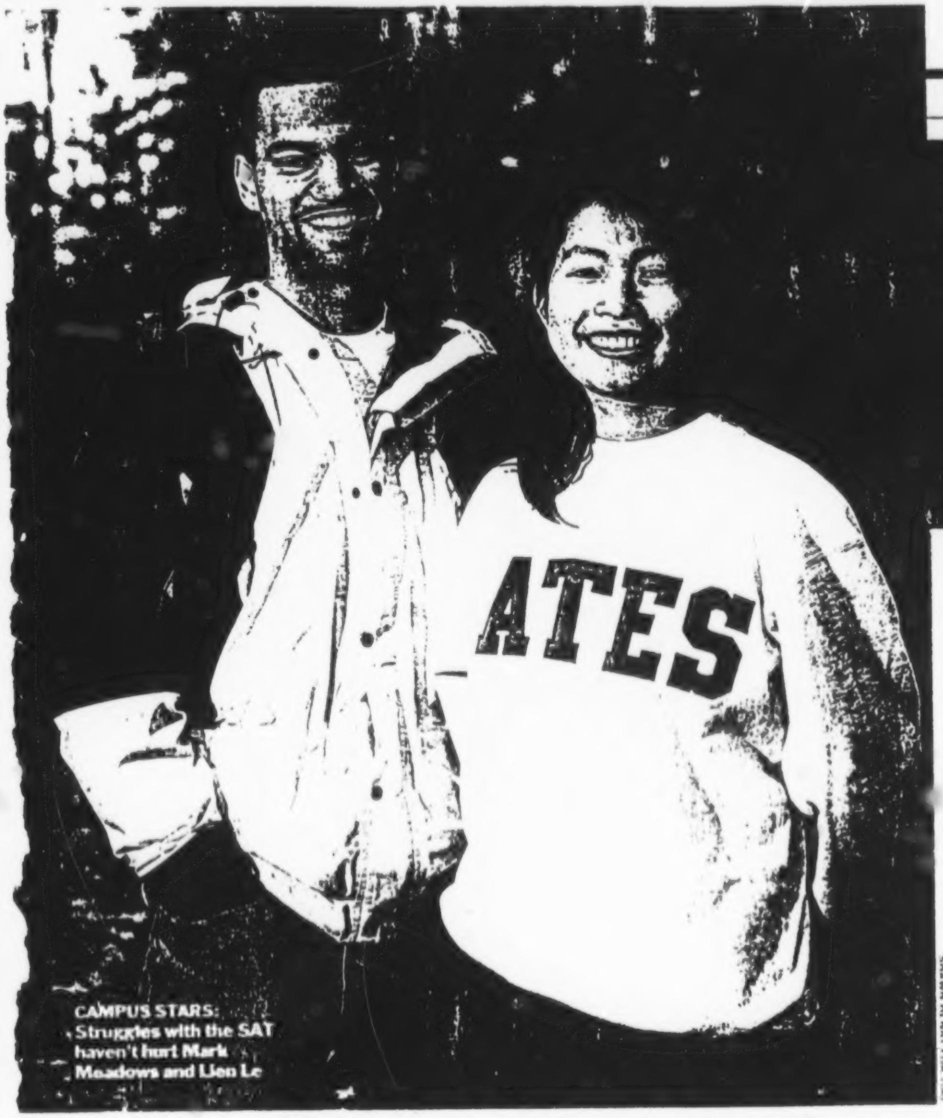
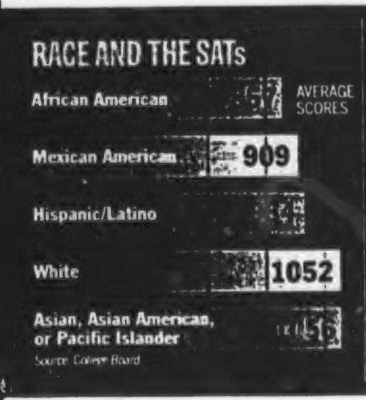


CAMPUS STARS: Struggles with the SAT haven't hurt Mark Meadows and Lien Le



Source: College Board

centage of four-year colleges requiring either test has actually increased since 1990, from 77% to 82%. Most admissions officers say the tests can be a useful guard against grade inflation: according to the College Board, 37% of students report getting A's today, up from 28% 10 years ago.

But few understand the advantages of avoiding an SAT verdict better than Mark Meadows and Lien Le. Meadows says he can't remember exactly how he fared on the test, but he knows it wasn't a score that would vault him from a middle-class life in Santa Rosa, Calif., to Harvard. His mother, a nurse, had home-schooled him for several years, and his math skills were weak. He graduated from high school with a 3.6 GPA and went to tiny Pacific Union College. But he thought he needed a bigger name on his graduate-school applications; he applied to Bates because he knew it wouldn't ask for scores. Now a popular senior, Meadows earns A's and B's, serves as a mentor to an eight-year-old boy and holds down a job in a bookstore. College officials call him "a real star."

For her part, Le immigrated empty-handed from Vietnam in 1991 and yet managed to become valedictorian of her Portland, Maine, high school. But her limited grasp of English made the SATs a horror: she scored 400 on the verbal portion (800 is perfect). At Bates she has a 3.6 GPA and interns at a hospital. "The fact that I've done well here shows that SAT scores don't affect how well a person can do," she says.

Roiling beneath the surface of the ocean of numbers is the issue of race. Why do minorities score worse? Manuel Gomez, a member of the Latino Eligibility Task Force, says suburban kids can often afford pricey coaching services that many minorities can't. Moreover, immigrants like Le—and many of California's Latinos—often struggle on the verbal part.

The College Board's Everson counters that coaching helps the average student get only about three extra questions right. The board says Latinos and blacks do worse because socioeconomic disadvantages (bad urban schools, fewer college-educated parents) leave them ill prepared. And Everson argues that in the end, dropping the SAT wouldn't necessarily help the UC system admit more Latinos, since more students of all races will become eligible for admission under a grades-only policy.

So far, he doesn't need to worry, at least not about California. The UC task force's no-SAT plan has little chance of becoming policy: it is widely opposed, not only by Republican Governor Pete Wilson but also by the moderate Los Angeles *Times* and San Francisco *Examiner*. They all contend that the proposal could lower standards.

But Texas' decision effectively to drop tests may be the first indication that they are vulnerable in the long run. Legislators there passed the top-10% law in May as a way of countering the effects of a court decision outlawing affirmative action at universities. They hope the new law will reverse the sudden drop in minority enrollment after the ruling by drawing diligent students from heavily minority schools. The Texas law was politically smarter than the California plan, since it cast reform as a way of encouraging students to get better grades; that's why G.O.P. Governor George W. Bush happily signed it. California's anti-SAT effort is doomed unless it is pitched the same way.

If the Supreme Court bans affirmative action altogether, every Governor will have to figure out how to avoid embarrassments like this fall's incoming class at UT-Austin's law school, which has just four black students (down from 31 last year) out of 475. As long as minorities fare worse than whites on SATS and ACTS, eliminating the tests will look like an easy—read cost-free and legal—way out. ■

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